DOCUMENT RESUME

ED 075 402 SP 006 368

AUTHOR	Singer, Robert N., Ed.; Weiss, Raymond A., Ed.
TITLE	Completed Research in Health, Physical Education, and Recreation Including International Sources, Vol. 14, 1972 Edition.
INSTITUTION	American Association for Health, Physical Education, and Recreation, Washington, D.C.
PUB DATE	72
NOTE	278p.
AVAILABLE FROM	AAHPER Publication-Sales, 1201 16th St., N. W., Washington, D. C. 20036 (Stock No. 248-25328 $3.00, quantity discounts)
EDRS PRICE	MF-$0.65 HC Not Available from EDRS.
DESCRIPTORS	Abstracts; Bibliographies; *Educational Research; *Health Education; *Physical Education; *Recreation; *Research Reviews (Publications)

ABSTRACT

This volume contains research works completed in the areas of health, physical education, recreation, and allied areas during 1971. The publication is divided into three parts: I--Index; II--Bibliography; and III--Theses Abstracts. The Index offers an alphabetical cross-reference by subject for the works found in parts II and III. The Bibliography contains 940 research articles from 145 of the 215 periodicals reviewed by the Committee for Completed Research. These Abstracts are master's and doctor's theses from 77 institutions which offered graduate programs in health, physical education, recreation, and allied areas. Most references in this section are accompanied by abstracts and all are in alphabetical order according to institution. Major professors and names of institutional representatives who sent in the material are indicated for each institutional representatives who sent the material are indicated for each article. Lists of the periodicals reviewed and reporting institutions are included. Names and addresses of the 11 member Committee on Completed Research are also presented. (Related document is SP006369) (BRB)

ED 075402

COMPLETED RESEARCH

in Health, Physical Education, and Recreation

including international sources

Volume 14 1972 Edition

covering research completed in 1971

Edited by **ROBERT N. SINGER** and **RAYMOND A. WEISS**
for the RESEARCH COUNCIL of the AMERICAN ASSOCIATION
FOR HEALTH, PHYSICAL EDUCATION, AND RECREATION

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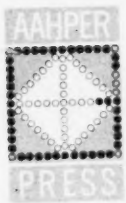

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A National Affiliate of the National Education Association
1201 Sixteenth Street, N.W., Washington, D.C. 20036

Library of Congress Catalog Card No. 59-15820

Stock No. 248-25328
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DEDICATED to the International Council on Health, Physical Education, and Recreation by its United States member the American Association for Health, Physical Education, and Recreation, to share this compilation with other member organizations of ICHPER and thus to extend knowledge in these fields. This annual volume is published in keeping with ICHPER's objective of exchanging research among professional workers throughout the world and furthering advancement in health education, physical education, and recreation.

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INTRODUCTION

This compilation lists research completed in the areas of health, physical education, recreation, and allied areas during 1971. It is arranged in three parts:

I. Index. In this section, cross references are given for all the listings in Parts II and III. References are arranged under the subject headings, which are in alphabetical order. Instructions for using the index are given at the top of page 1.

II. Bibliography. This is a listing of published research, citing articles published in 145 of the 215 periodicals reviewed by the Committee for Completed Research. The periodicals reviewed are listed on pages 267 through 269.

III. Theses Abstracts. These are master's and doctor's theses from 77 institutions offering graduate programs in health, physical education, recreation, and allied areas. Institutions reporting are listed on pages 270 and 271. Most references are accompanied by abstracts of the research and all are numbered in alphabetical order according to the institution. Names of institutional representatives sending in these abstracts are indicated in parentheses after the name of the institution; major professors are in parentheses after each reference.

Universities and colleges are encouraged to submit abstracts of theses completed at their institutions in the year 1972 for inclusion in the next issue of *Completed Research*. Material should be sent to Robert N. Singer, Chairman for Theses Abstracts.

Robert N. Singer
Raymond A. Weiss

Co-chairmen
Committee on Completed Research

PART I—INDEX

This index enables the reader to refer to the items of completed research listed in Parts II and III. Research topics are arranged in alphabetical order. The reference numbers following each topic correspond to the listings of completed research dealing with that topic. The capital letter B indicates a reference to be found in the Bibliography (Part II); the capital letter T indicates a reference to be found in the Theses Abstracts (Part III).

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PART III—THESES ABSTRACTS

Abbreviations appearing in this publication:

AAHPER = American Association for Health, Physical Education, and Recreation (abbreviate all familiar organizations, e.g., AAU, NCAA, etc.)
ANCOVA = analysis of covariance
ANOVA = analysis of variance
bpm = beats per minute
BTPS = body temp pressure saturated
C = centigrade
CA = chronological age
CO_2 = carbon dioxide
X^2 = chi square
o = degrees
E = experimenter
ELE = elementary
EKG = electrocardiogram
EMG = electromyogram
EMR = educable mentally retarded
exp. = experiment or experimental
F = Fahrenheit
$\underline{F}$ = F ratio
FEV 1.0 or 2.0 = forced expiratory volume
gm. = gram
GPA = grade point average
HE = health education
ht. = height
HR = heart rate
IQ = intelligence quotient
JHS(s) = junior high school(s)
kg. = kilogram
kg/m = kilogram per meter
kpm/min = kilopondmeter per minute
KR = knowledge of results
M = mean
measurement, units of*
mm. = millimeter
mph = miles per hour
msec. = millisecond(s)
MT = movement time
no. = number (in text, e.g., the total no. of days ...)
N = number (e.g., of subjects) all numbers in arabic form, e.g., 1, 2, 3, etc. 1st, 2nd, 3rd, 4th, etc.
N_2 = nitrogen
O_2 = oxygen
$\underline{p}$ = probability ($\underline{p}<.05$ = significance greater than .05 level, $\underline{p}>.01$ = non-significant at .01 level)
PE = physical education
PR = pulse rate
% = percent
psi = pounds per square inch
max. = maximum or maximal

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* in. = inch; sec. = second, wk. = week, hr. = hour, etc.

r = correlation
REC = recreation
rpm = revolutions per minute
RT = reaction time
SV = stroke volume
SD = standard deviation
SHS(s) = senior high school(s)
STPD = standard temp. pressure dry
S(s) = subject(s); S's = subject's (possessive) (fresh, soph. jr. sr.)
t = t ratio
tests**
temp. = temperature
U.S. = United States
USSR = Union of Soviet Socialist Republics
wt. = weight
$\dot{V}O_2$ = oxygen uptake
$\dot{V}_E$ = ventilation equivalent
YMCA = Young Men's Christian Association
V_T = tidal volume
YWCA = Young Women's Christian Association

**All kinds of performance tests are abbreviated if possible (e.g., CPI = California Psychological Inventory, Cattell 16 PF = Cattell 16 Personality Factor Inventory, MMPI = Minnesota Multiphasic Personality Inventory).

Abstracts

University of Alabama, University, Alabama (W. J. Baughman)

1. BLALOCK, Margaret A. Comparison of performance of selected motor skills by elementary school children. Ed. D. in Health, Physical Education, and Recreation, 1971. (W. J. Baughman)

Fourth grade boys and girls (N=609) were administered a motor skills test consisting of the softball throw for distance, shuttle run, vertical jump, squat thrust, and basketball wall test. Comparisons were made of the skill performances of Ss taught by PE specialists and those taught by regular classroom teachers. The specialist had a positive effect upon the performance of the skills and the difference was particularly evidenced in the skills of agility and ball handling. Girls appeared to benefit considerably more than boys from instruction by specialists. The M scores were generally higher for boys than girls on the battery of selected motor skills.

2. HARRIS, Ronnie. A comparison of the effects of different methods of training and detraining of the strength and speed of college men. Ed. D. in Health, Physical Education, and Recreation, 1971. (G. B. Pearson)

Male students (N=81) enrolled in 4 tennis classes were tested on 4 items of the Clarke-Schopf Strength Test, dominant and nondominant grip strength, and time in the mile run. S's were randomly assigned to 3 groups; group A ran 1 mile 4 times a wk., group B ran 4 440-yd. dashes 4 times a wk., group C participated in tennis 4 times a wk. After a 6-wk. training period Ss did not train for 2½ wks. No significant differences were found for trunk extension, knee extension, ankle plantar flexion, dominant and nondominant grip strength. Significant differences were found in two items: group C significantly improved their shoulder extension and group A decreased significantly in the ability to run the mile after the detraining period.

3. HILL, Shirly Ann. The life of Jessie Reed Garrison Mehling, and her contributions to health, physical education, and recreation. Ed. D. in HPER, 1971.

The study revealed that Mrs. Mehling, former State Supervisor of HPE in Ala., was the first female to fill such a position in the U.S. She worked for better programs in Ala. through visitations, lecturing, preparing materials and bulletins, and helped develop curriculums for public schools. Mrs. Mehling planned and administered many conferences, clinics, and schools of instruction in social recreation training and square dancing. This female administrator served in many professional offices and received many professional honors for her endeavors, including being the first female president of the Society of State Directors, and president of the Southern District of AAHPER. Mrs. Mehling received the honor award from the Southern District of AAHPER and was honored by the American Academy of PE in 1944 with the Academy Award. Her efforts through the yrs. created an opportunity for every child to participate in a program of HPER in Ala. Her unselfish desire to help others, intense interest in people, and service to all professional groups stand as a tribute to her life. Jessie Mehling was a major factor in the development of the Ala. AAHPER as well as a significant contributor to allied national organizations.

4. MCCLAIN, William N. An evaluation and analysis of the undergraduate professional preparation programs in physical education for men in the colleges and universities of North Carolina. Ed. D. in Health, Physical Education, and Recreation, 1971. (G. B. Pearson)

Using an instrument designed by Karl Bookwalter and Robert Dollgener, comparisons were made for total score of attainment between state-supported institutions and private institutions of North Carolina (N=16). Comparisons were also made for total score percentage of attainment between liberal arts institutions and teacher education institutions, and on the basis of student enrollment. From rank order of area scores for each institution and analysis of item scores in each area significant differences were noted: there was a wide range of variability among the programs; the programs ranked slightly above the national average; state-supported colleges ranked higher than private institutions; teacher education institutions higher than liberal arts; university programs ranked higher than college programs; North Carolina universities ranked higher than national average but NC colleges ranked below national average; institutions with enrollments between 5, 000 and 9, 999 ranked higher than institutions with 1, 000 and 4, 999 in the state and nation; institutions with enrollments between 1, 000 and 4, 999 ranked below the national average of similar institutions.

5. TAYLOR, Kenneth F. The relationships of introversion/extroversion and anxiety to lean body mass and reaction time. Ed. D. in Health, Physical Education, and Recreation, 1971. (G. B. Pearson)

Black male college students (N=60) were randomly assigned to 4 personality groups, dependent upon their introversion/extroversion and anxiety self-rating; introvert/low anxiety, introvert/high anxiety, extrovert/low anxiety, extrovert/high anxiety. The following data were gathered for each S to calculate his lean body mass: skinfold of dorsum of right arm and right scapula; wt. and age; and lean body wt. Each S was given 15 trials in simple and choice RT tasks. The findings suggested that there was an interaction effect between basic personality type and drive level and simple and choice RT, and to a lesser extent lean body mass; the stronger the contribution of lower drive level the faster the RT as the complexity of the performance task increased.

6. WILLIS, Robert Marion. A compilation and evaluation of state legislation providing for physical education. Ed. D. in Health, Physical Education, and Recreation, 1971. (G. B. Pearson)

Rules and regulations provided by legislation and enabling acts of all states were interpreted according to status, form, and content. Ratings were made by the state directors on the effect of laws on 20 elements of PE programs. Mandatory laws for ele and secondary PE were found in a majority of states. Specific or general laws for PE were found in 2/3 of the states and enabling acts in 1/3. About 1/2 of the states designated developmental purposes, 3/4 indicated time allotments, over 1/3 required adequate facilities, and 1/3 required major credit for teacher certification. It was recommended that regulations be specific and mandatory, include definite time allotments, teacher certification, and developmental purposes, and that a method of evaluation be developed by states for constant use. The study may be useful in the promotion of PE through improved legislation.

Appalachian State University, Boone, North Carolina (E. T. Turner)

7. CLITHEROW, Ronald H. Extent of sexual knowledge, accumulation of sexual information, and sex education attitudes of undergraduate students at Appalachian State University. M. A. in Physical Education, 1971. 180 p. (E. T. Turner)

Ss in the study (N=226) were stratified according to sex and academic class for comparative analyses. Data were obtained from a 5-part questionnaire completed simultaneously by all Ss in the same testing location. The home was most frequently cited as a source of sex education (S. E.) during 7 to 15 yrs. of age. Prior to 7 yrs. of age and after 15 yrs. of age, the home was infrequently cited as a source. The school was not an influential source of S. E. prior to grade 7, but was reported more frequently than the home as a source after puberty. Females received S. E. more often than males within both the school and home. The church was cited as a source of S. E. by less than 30% of the Ss. Ss did not possess adequate sexual knowledge and were unable to realistically evaluate the extent of their present sexual knowledge. On a 100-question sex knowledge test, higher scores were positively related to higher chronological age and higher academic class status. Both sexes possessed similar degrees of sexual knowledge.

8. MCKETHAN, Robert N. The relationship of vital capacity and selected anthropometric variables to two-mile run time. M. A. in Physical Education, 1971. 59 p. (W. Steinbrecher)

Ss (N=24) selected from PE majors were measured for selected anthropometric variables. Vital capacity (VC) measurements and 2-mile run times were also recorded. The anthropometric variables, VC, and ratios of the anthropometric variables and VC were compared to 2-mile run times. Analysis of the variables indicated that ht. and wt. were significantly related to body surface area (BSA). BSA was significantly related to VC, age was significantly related to wt., and VC was totally unrelated to 2-mile run time. The ratio VC/BSA was not related to 2-mile run time. The ratio VG/wt. was significantly related to 2-mile run time.

9. WILLIAMS, Hiram P. A comparative study of tendencies and motivational factors of students from various academic departments who vandalize library materials. M. A. in Physical Education, 1971. 151 p. (E. T. Turner)

College men (N=236) and college women (N=246) from English, Business, Elementary Education, Psychology, and PE departments participated in the study. Ss were surveyed with a limited response questionnaire during selected class meetings. They were grouped by academic departments and compared as to amounts, tendencies, and motivational factors involved in library vandalism. X^2 indicated that PE majors vandalized a significantly higher amount of library materials than Eng., Ele. Education and Psychology majors. Males stole more materials than females. Sophs., jrs., and srs. committed a significantly higher no. of acts of vandalism than other classifications. Ss were motivated to excise articles primarily because of the nature of professors' assignments.

University of Arkansas, Fayetteville, Arkansas (G. C. Moore)

10. AKERS, James B. The degree of autonomy exercised by athletic directors as perceived by athletic directors and by the presidents or chairmen of the selected institutions. Ed. D. in Physical Education, 1971. 166 p. (G. C. Moore)

A checklist type questionnaire was distributed to all colleges and universities with full time athletic directors in 8 states (Arkansas and surrounding states). Of the 146 schools, replies were received from 138 (83.6%) of the athletic directors and from 124 (75.15%) of the presidents and chairmen. The respondents were asked to rate the autonomy of the athletic director on a 5-point scale, both actual and desirable, for each responsibility listed. X^2s were computed for each responsibility and percentages were used to compare total scores. The conclusions were: a majority of the athletic directors indicated they had 80% or better autonomy, while a larger majority of the presidents and chairmen indicated 60% or better actual autonomy; the athletic directors of major universities tended to have more autonomy than did those of the large and small colleges; both the presidents and chairmen and the athletic directors indicated it was desirable for athletic directors to have more autonomy than they now possessed; the athletic directors possessed the greatest autonomy in administering the athletic budget, in purchasing supplies and equipment, in scheduling games, and in directing travel arrangements.

11. BESTOR, Glenn L. The effects of an isotonic weight training program on speed in three competitive strokes in college swimming. Ed. D. in Physical Education, 1971. 70 p. (G. C. Moore)

The study attempted to determine whether 20 varsity swimmers would increase their speed of swimming the 50-yd. front crawl, back crawl, and breast stroke after an 8-wk. isotonic weight training program. Various body parts of each S were measured and speed for swimming the 50-yd. sprint in 3 competitive strokes was recorded prior to the initiation of the weight training program and at the end of the experimental program. Three one-way ANOVAs were performed on the difference between pre- and post-scores on all 3 competitive strokes. Correlated t ratios were calculated within groups to decide whether any changes had occurred in muscle size. A comparison of performance in 5 weight lifting exercises was also calculated by using a correlated t ratio. Correlated t ratios were calculated on the 3 competitive swimming strokes. When equivalent practice time is utilized, an interval swimming program supplemented by the isotonic weight exercises used in this study is no more effective than an interval swimming program alone in increasing speed in the 3 competitive 50-yd. strokes.

12. HILL, Carl L. Factors related to the attitudes of ninth grade boys in Arkansas toward physical education. Ed. D. in Physical Education, 1971. 100 p. (G. C. Moore)

Using the Edington Attitude Scale as a measure of the attitude toward PE and 969 HS freshmen as Ss, the relationship between attitude toward PE and selected factors was investigated. A r regression program was the statistical procedure utilized. Results indicated low (but statistically significant) rs between scores on the Edington Scale and 10 of the factors: personal attention given by the instructor, size of the school, whether PE was required, size of the PE class, time of day of the class, student's rating of his own skill, the PE grade, grade point on basic objects, and outside participation in sports.

13. MASON, Danny R. The effects of different weight golf shafts on clubhead velocity prior to contact with the ball. Ed. D. in Physical Education, 1971. 139 p. (G. C. Moore)

The basic question was: Does clubhead velocity differ when the total wt. of the club is increased or decreased by adding to or removing wt. from the shaft of the club but maintaining shaft length, flex, grip wt., and clubhead wt. ? The question was studied for steel, aluminum, and fiberglass shafts. Ss were 10 novice, 10 collegiate, and 10 professional golfers. Each swung, with max. effect, 9 no. 1 woods (3 each of

aluminum, steel, and fiberglass). The woods differed in clubhead wt. Wt. was added to each type shaft to make them swing weigh D-1, D-3, and D-5. A digital timer was developed to measure velocity the final 6 in. prior to contact with the ball. Conclusions were: greater velocity was obtained with the aluminum shafted clubs for the corresponding clubhead wts.; the greatest velocity was always obtained with the lightest clubhead regardless of type shaft; the 3 types of golfers were not significantly different in the velocity with which they swung the clubs.

14. PENNELL, James R. A survey of the current status of athletic training programs in football in the high schools of Arkansas. Ed. D. in Physical Education, 1971. 70 p. (E. T. Hendricks)

The current status of athletic training programs in the SHSs of Arkansas in football was surveyed by means of a questionnaire to the 203 schools participating in football. Returns were received from 171 schools (84%). A stratified random sample of football coaches (N=20) was used for an interview. The questionnaire consisted of 18 checklist and 6 short answer type questions. The interview was used to obtain information concerning the attitudes of the coaches relative to the importance and effectiveness of athletic training. Data were compared with recommended standards. The major findings were: only 11% of the schools met the recommendation for size and location of the training room and 18% for equipment needed; only 3% of the schools had a professional athletic trainer and only 51% a school physician present at football games; of those interviewed, 90% believed the school administration had an obligation to provide athletic training programs and 80% believed the schools were not meeting this obligation.

15. PILCH, Arthur H. Cardiovascular responses of selected middle-aged subjects to regular periods of exercise. Ed. D. in Physical Education, 1971. 177 p. (G. C. Moore)

Twenty male volunteers 30 to 55 years of age pedaled the bicycle ergometer 30 min. a day, 4 days a week for 6 weeks at a workload that kept the HR at 135. Pre- and post-tests were administered and the differences determined for body weight and selected cardiovascular parameters taken during a submaximal work test. The measures were: HR, ventilation, blood pressure, O_2 uptake, and CO_2 expired. A comparison group of 20 volunteers from the intramural and athletic programs was tested once. The t ratio was used to determine the significance of the T-1 to T-2 changes. A one-way ANOVA was used to compare the training and comparison groups on the various parameters. Conclusions were that the training program was an adequate cardiovascular training stimulus for middle-aged men and was effective in weight reduction. Middle-aged men appear to have the same cardiovascular training adaptation in submaximal work as a younger population.

16. RYDER, Hollie A. The effects of ingesting a liquid nutrient one hour prior to the performance of the one-mile run. Ed. D. in Physical Education, 1971. 47 p. (R. R. Ryan)

Times on the 1-mile run were compared after the following conditions: a liquid nutrient ingested 1 hr. prior to the performance, a liquid placebo ingested 1 hr. prior to the performance, no supplementation. The Ss were 12 varsity, college distance runners. Each S was given each experimental condition twice over a 2-mo. period using a rotated procedure to prevent bias. The liquid nutrient was "Nutrament." The placebo was furnished by the same commercial company. Mean times were: nutrient supplement 284.1 sec., placebo 285.9 sec., and no supplement 284.1 sec. A two-way ANOVA indicated no significant differences. The conclusions were there were no significant differences in mile run times when preceded by a liquid nutrient, a placebo, or no supplement.

17. SLAYMAKER, Ronald L. Administrator's opinions and the current status of family life and sex education programs in Kansas secondary schools. Ed. D. in Physical Education, 1971. 141 p. (E. T. Hendricks)

The study was divided into 3 phases. Phase I determined, by means of a questionnaire, the status of education about sexuality in Kansas secondary schools. Responses were obtained from the 300 school principals with 73% indicating they had a program about sexuality. Schools with larger enrollments were more likely to have the program than smaller schools. Of the schools having programs, 55% exposed all students to the program. Written guides were available in 18% of the schools. Phase II surveyed all secondary school principals concerning their opinions toward family life and sex education. Their opinions indicated: schools should offer such a program K-12; there still remains a question whether the program should be required; there is not agreement that this should be a separate subject; and classes should be coeducational except for certain presentations.

Boston University, Boston, Massachusetts (Richard Rohrbacher)

18. BALAZS, Eva. A manual of gymnastic moderne. Ed. M. in Physical Education, 1971. 400 . (D. Pargman)

A manual of gymnastique moderne (an international name of a new live competitive gymnastics for girls) was prepared for students. The manual was designed primarily for girls 10 yrs. and older. The manual includes step by step instructions of rhythmic gymnastics with jump ropes, balls, hoops, Indian clubs, streamers, and pennants, as well as suggestions for starting gymnastique moderne programs in the ele., JHS and SHS. International competitions, rules and regulations, and the history of competitive gymnastique moderne are also presented.

19. BRANNON, Dorothy. Breakfast and breakfast omission: A comparison of performances on selected AAHPER youth fitness test items in junior high school girls. Ed. M. in Physical Education, 1971. 96 p. (D. Pargman)

Fifty JHS girl students ranging in age from 12 to 15 yrs., were randomly picked as Ss. Two administrations of the test battery were applied to the same Ss on 2 different occasions. On the morning of the 1st administration, Ss came to school with no breakfast. The test battery including a standing broad jump, sit ups, modified pull-ups, flexed arm hang, shuttle run, and 50-yd. dash was administered. Two wks. later the Ss again came to school without breakfast but were fed orange juice, toast, jam, dry cereal and milk (700 cals). Two hrs. later they were given the same test as previously administered. Statistically significant differences in favor of the breakfast group were found in 6 of the 7 test items, the standing broad jump being the sole exception. This study should provide supportive evidence that proficiency in morning performance of vigorous large muscle motor activity is enhanced with the consumption of breakfast.

20. CANAVE, Fina Canto. A study of the nature of values of nursing students and nursing teachers in a selected school of nursing. Ed. M. in Physical Education, 1970. 84 p. (D. Pargman)

21. D'AMOUR, Dana A. A study of the relationship of circuit training and progressive resistive exercise combined with specific endurance running to the development of selected components of physical fitness. Ed. M. in Physical Education, 1971. 39 p. (D. Pargman)

22. PEARMAN, Eleanor C. Historical study of the emotionally-supportive and patient-teaching roles of the general duty nurse from 1900-1970. Ed. D. in Physical Education, 1971. 202 p. (C. E. Willgoose)

An historical study was undertaken to define 2 traditional direct patient-care roles of the general duty nurse within the general hospital. The emotionally-supportive role and the patient-teaching role were defined for 3 time periods: 1900-1924, 1925-1949, 1950-1970. Data from 637 publications located in medical, nursing, and general libraries were utilized. It was found that all nursing behaviors of the emotionally-supportive role were considered unessential to nursing care through 1949 but that in the latest period (1950-1970) there are progressive signs of greater recognition of the nurse's independent role in supporting patients emotionally. The impulse of patient-teaching was not effectualized within the hospital setting until the late 30s and 40s and is essential to nursing care of the general duty nurse role in 1970. The study recommended joint research by hospital administrators and nurses to identify general duty nurse role conflicts.

23. ROHRBACHER, Richard. The influence of a special camp program for obese boys on weight loss, self-concept and body image. Ed. D. in Physical Education, 1971. 194 p. (A. G. Miller)

Overweight and obese boys (N=204) underwent an 8-wk. special camp program. The Ss ranged in age from 8 to 18. Data were collected on the Ss 6 mos. and 1 yr. prior to the camp program and a follow-up study was performed 4 mos. after the camp program ended. Self-concept and body image were assessed pre-, post-, and at the end of the follow-up period. They were grouped for statistical purposes by maturation level, degree of overweight, ordinality, religion, parental status, and parental obesity. Body image showed significant positive change as a result of the camp program and remained positive throughout the follow-up period. Self-concept remained unchanged after the follow-up period. The long-term trend of normal wt. gain was interrupted and changed significantly. The wt. lost as a result of the program was not regained after the camp period ended. Body image may be the crucial factor which needs to be changed in helping obese children maintain wt. loss.

24. ROSENBLEETH, Ronald J. The effect of positive and negative reinforcement upon motor performance of students from selected grade levels. Ed. D. in Physical Education, 1971. 104 p. (A. G. Miller)

Ss were 240 male students from the 7th and 10th grades and fresh. in college. Each grade level of Ss was given a maximal motor performance test and treated with 1 of 4 different reinforcement conditions. The reinforcement conditions were positive, negative, combination positive and negative, and no external reinforcement. Results showed that none of the 4 methods significantly affected the performance of the Ss and all of the methods of reinforcement improved performance.

25. SULLIVAN, James V. The development and evaluation of a teacher-preparation course in physical education for teachers of educable mentally retarded children. Ed. D. in Physical Education, 1971. 280 p. (A. G. Miller)

Educable mentally retarded (EMR) children (N=128), ages 8-15, were taught PE for 1 yr. by 16 special ed. teachers who were divided into 4 groups depending on their preparation to teach PE to EMR children. Motor ability, physical fitness, and social adjustment were assessed pre and post. The EMR children taught by teachers who had taken a special PE course showed significantly more improvement than did the children in the other 3 groups. The performance of the children in this

group gave indication that the teachers learned methods, techniques, and skills from taking the special PE course for EMR children.

26. VIRGILIO, Carmela L. A comparison of the effects of the school health education study (SHES) approach and the lecture-discussion approach upon drug knowledge and attitudes of high school students. Ed. D. in Physical Education, 1971. 112 p. (H. J. Gurney)

Two 3-wk. units on drug education were conducted. One used the lecture-discussion program and another used the School Health Education Study program. Ss were 777 SHS boys and girls. Nine teachers from the Social Studies Department taught the 2 instructional programs to 36 sections during the regularly scheduled class periods. Knowledge and attitudes were assessed prior to and following the programs. There were no statistically significant differences between the 2 programs when comparing gain scores in drug knowledge. The lecture-discussion program produced significantly greater change in attitude towards drugs. Students in college divisions showed greater gains in drug knowledge, while general division students showed greater gains in attitude change. There were no significant differences in retention of drug knowledge and attitude changes when comparing programs, grades, and sex of Ss; however Ss in college divisions had significantly greater gains in retention of drug knowledge. Results of the study indicate that more emphasis and attention in HE should be placed on ele. and JHS students.

Brigham Young University, Provo, Utah (D. D. Shaw)

27. ABRATH, Paul L., Jr. The status of youth physical education programs at state mental hospitals in the United States. M. S. in Physical Education, 1971. 72 p. (E. S. Roundy)

A special questionnaire was constructed and mailed to 180 state mental hospitals across the country with 50 returned and used for evaluation. A selected panel of experts, made up of 7 graduate faculty members from the Brigham Young University departments of PE and REC, compared a status summary of information collected from the 50 questionnaires against a general set of criterion standards for sound physical education programs. The panel was unanimous in its support of the hypothesis of this study--that "youth PE programs at state mental hospitals in the U. S. are inadequate to the needs of the interned youth patients."

28. BARKER, Ruel M. Biographies of historical leaders in health, physical education, and recreation. Ed. D in Physical Education, 1971. 363 p. (E. S. Roundy)

In 1945, David K. Brace, under the auspices of the American Academy of Physical Education, selected 100 outstanding leaders in health, PE, and REC and compiled a short file-card biography on each person. Based on accepted historical research procedures, a biographical synopsis of the first 24 leaders from that list was written. Each synopsis was composed of a page listing the vital statistics of the personality being considered, followed by a concise narrative describing the professional life and contributions of each leader.

29. BARRUS, James C. A survey on training rules for Wyoming high school football players. M. S. in Physical Education, 1971. 103 p. (E. S. Roundy)

The method most often used to discipline an athlete guilty of breaking a training rule was dismissal from the squad. Most coaches agreed upon the importance of being an example for athletes to emulate except in the

areas concerning drinking and smoking. The pressure to win would not influence most coaches to be more lenient on training rule enforcement of key athletes. A majority of the coaches were not in favor of uniform training rules for all Wyoming SHS football players.

30. BOSWELL, David M. A study of the recently established provincial government youth departments and agencies in seven provinces of Canada. Ed. D. in Physical Education, 1971. 292 p. (E. S. Roundy)

A jury of experts was established and an evaluative questionnaire based on the information obtained from the provincial youth offices was developed and forwarded to each member of the jury for the purpose of establishing criteria or standards for provincial youth departments. The findings provided much information pertaining to provincial government youth departments and agencies, particularly in the areas of policies, programs, legislation, structure, and relationships with voluntary agencies. Based on the findings, certain conclusions were made with respect to each of the above areas of concern and recommendations were suggested based on judgment.

31. CAHOON, Lynda Kay. A study employing pictorial means to illustrate two degrees of amplitude on fifteen selected women's gymnastic stunts. M. S. in Physical Education, 1971. 86 p. (E. S. Roundy)

Sequence pictures were taken of 15 selected women's gymnastic stunts. Each stunt was filmed twice, once showing good amplitude and once showing poor amplitude. Five stunts each were illustrated for the balance beam, floor exercise, and uneven parallel bars. A list of all the stunts filmed and a checklist of elements important in each stunt were sent to 31 nationally-rated women's gymnastic judges in the U. S. A total of 65% responded. It was determined that specific elements cause a loss of amplitude, and amplitude serves as the enhancing element of form. Total body extension is necessary.

32. CLARKE, Mark S. Muscular strength and cardiovascular fitness of elementary school children taught by specialists and by classroom teachers. Ed. D. in Physical Education, 1971. 199 p. (E. S. Roundy)

Criterion measures were 4 tests of muscular strength and one test of cardiovascular endurance. Fifth and 6th grade boys and girls (N=360) were evaluated. The data obtained from the testing were subjected to an ANOVA. Within the limitations of the study, the following major conclusion is justified: 5th and 6th grade boys and girls who are instructed in PE by specialists demonstrate more strength and cardiovascular endurance ($p<.05$) than those instructed by their regular classroom teacher.

33. DAVIES, Sheryl L. The relationship between alienation and drug use. M. S. in Health Sciences, 1971. 36 p. (R. M. Watters)

A 3-part questionnaire was used to collect data from 4 groups. The first part required that the respondent give biographical data, the second part asked the respondent to indicate his use of certain drugs, and the final part was an alienation scale devised by Dean, Iowa State University. ANOVA was used to test the null hypothesis. A Tablex program was run to cross-tabulate the obtained biographical information with drug use. No statistical significance was found between drug use and alienation. There was, however, a relationship found between alienation and school. The Tablex cross-tabulations were used to obtain information concerning people who were presently using drugs as opposed to former drug abusers and those who had never used drugs.

34. DAVIS, Susanne Johnson. Psycho-social factors that relate to why students use tobacco. M. S. in Health Sciences, 1971. 66 p. (R. M. Watters)

The surveyed sample consisted of 234 students from the 6th, 9th, and 12th grades in the Sevier County School District of Utah. A tobacco questionnaire was administered to determine smoking practices, tobacco knowledge, and attitudes concerning smoking. The study indicated that tobacco knowledge does not significantly influence the smoking habits and practices of the student sample surveyed.

35. DESHAZO, G. Newton. A review of statements made by certain leaders of the Church of Jesus Christ of Latter-Day Saints which refer to various objectives, activities, and desirable experiences inherent in well organized and properly conducted physical education and recreation programs. M. S. in Physical Education, 1971. 145 p. (E. S. Roundy)

Data from 1830 through 1969 were gathered from the resources and services provided by the historical libraries of the L. D. S. Church and Brigham Young University. Available biographical and historical information was presented to denote circumstances possibly influencing the statement itself, the significance of the statement, or the intent of the statement. All the men supported wholesome competitive and noncompetitive physical activities so long as they did not interfere with Church activities, so long as they were not participated in on Sunday, and so long as the value to the participant was wholesome and conducive to his spiritual, mental, and physical health and welfare.

36. ERCANBRACK, Deanne. A cinematographic analysis of the techniques and mechanics of the forward and backward somersaults as they are performed on skis. M. S. in Physical Education, 1971. 47 p. (E. S. Roundy)

Stick figures were prepared from films using a Kodak Microfilm Reader and were analyzed to determine body positions and timing. Mathematical calculations determined velocities and trajectories of the jumps. Two Ss were filmed; 1 performed the front somersault and the other the back. The front somersault skier jumped 87 ft. at 52 ft/sec at an angle of 38° with the horizontal in 2.13 sec. The back somersault skier jumped 111 ft. at 55.9 ft/sec at an angle of 40° with the horizontal in 2.57 sec. A successful jump can be accomplished at 50 ft/sec on an incline of 30°. The skier has approximately 2 sec to complete the somersault. The circumduction of the arms in the direction of the somersault will slow or stop the motion and in the opposite direction will speed up the rotation. Beginning skiers should not attempt these stunts; more advanced skiers should do so only with professional instruction and proper hill and snow conditions; and the skier should be experienced in diving and/or rebound tumbling.

37. FOSS, Charlenda. An exer-grid program to develop physical fitness in high school girls. M. S. in Physical Education, 1971. 85 p. (E. S. Roundy)

An exp. group (N=60, 9th grade, SHS girls) used the Exer-Grid program for warm-up exercises for 6 wks. A control group (N=60, 9th grade, SHS girls) used basic calisthenics. Pre- and post-test design was used measuring strength, agility, endurance, flexibility, and total fitness. ANOVA showed a significant difference in endurance gain of both treatments. The study seems to indicate that a gain in endurance was the cause of the significant difference in total fitness. The control group had the greatest gain in all areas.

38. GARAVAGLIA, Jo-Ann. An electromyographic-electrogoniometric analysis of the action of selected trunk and lower extremity muscles in the glide kip. M. S. in Physical Education, 1971. 75 p. (E. S. Roundy)

Five girls who demonstrated a high level of execution of the glide kip were used as Ss. It was observed that the hip and lower trunk flexors were active during hip flexion against the force of gravity and hip extension with the force of gravity. The greatest amplitudes were recorded for these muscle groups during the pike to bring the ankles to the bar. The hip and lower trunk extensors were active during the thrust of the jump, the kipping action, and the arch to finish the stunt. All Ss came to a full extension at the end of the glide, paused at the end of the glide, and brought the ankles all the way to the bar during the following pike.

39. GILLETT, Ronald E. Intrinsic factors that relate to high school basketball success in Idaho. M. S. in Physical Education, 1971. 61 p. (E. S. Roundy)

Thirty rated coaches, their principals and 2 of their varsity team members answered questionnaires regarding their reasons for coach and program success. According to the coaches a number of intrinsic factors are common to successful high school programs. Responses from principals and team members also supported the idea that numerous intrinsic factors are common to success in high school basketball.

40. GREBE, Keith R. A comparison of three twelve-minute training methods in developing cardiovascular endurance. M. S. in Physical Education, 1971. 55 p. (E. S. Roundy)

Twenty Ss were placed in a control group or 1 of 3 training groups. Each S was given a max. $\dot{V}O_2$ test at the beginning and end of a 6-wk. training period. Each training group recorded gains in cardiovascular endurance; however these gains were not significant ($p>.05$). The training groups recorded significantly greater improvements in total running time and the effects of the training programs varied by the initial fitness level of the subjects.

41. GUTHRIE, Darrel W. A study to develop a perceptual-motor screening test for atypical children. Ed. D. in Physical Education, 1971. 151 p. (E. S. Roundy)

Tasks selected from a literature review (N=130) were organized under 19 general categories of perceptual-motor skills. Children who were enrolled in regular PE classes (N=110) were selected as Ss and were administered the experimental test. Tasks within the test battery were scored on a pass or fail basis. Analysis, based on the percentages of passing performances, showed a hierarchical order of difficulty. Criteria established for the selection of tasks resulted in the construction of a comprehensive perceptual-motor test that was successful in determining a progression order of skill in young children. The hierarchical order of difficulty was the basis for the organization of a perceptual-motor test for retarded children. Administrative and scoring instructions for the test were included in the text.

42. HALL, Larry T. The contribution of tennis toward the development of strength and endurance. M. S. in Physical Education, 1971. 58 p. (E. S. Roundy)

Male college Ss (N=72) participated in beginning tennis and were placed in 2 groups (control, N=40; exp., N=32). The control group did not participate in PE classes while the exp. group participated in beginning tennis. The findings of this study concluded that tennis does not contribute toward the development of strength and endurance.

43. HAMMER, Larry L. Psycho-social factors that relate to why students use tobacco. M. S. in Health and Safety Education, 1971. 46 p. (R. M. Watters)
The traits of socialization, achievement via independence, intellectual efficiency, responsibility, and achievement via conformance from the California Psychological Inventory showed predictive relationships to student smoking status. Age, IQs, GPA, and parental guardianship (occupancy) also showed predictive relationships to smoking.

44. HOGLUND, Wilford J. A comparative study of the relative levels of physical fitness of male L. D. S. missionaries who are commencing and those just concluding their missionary service. M. S. in Physical Education, 1971. 78 p. (E. S. Roundy)
Returning missionaries were found to have experienced a significant decrease ($p<.01$) in the following areas: leg and back strength, total strength score, strength quotient, total sec. run, total endurance score and over-all fitness score, but an increase in gripping strength ($p<.01$). There was no significant difference between groups ($p>.01$) in the areas of body wt. or arm strength. Ninety % of the returning missionaries were found to be below McCloy's National Strength Norms ($p<.01$). Eighty-six % of the returning missionaries were classified as being in poor over-all condition as opposed to 26% prior to their departure for the mission field.

45. HORNE, G. Kent. Motivational factors which influence high school football players. M. S. in Physical Education, 1971. 46 p. (E. S. Roundy)
Twenty schools were chosen at random to participate in the questionnaire study and 19 responded. ANCOVA was used to adjust for unequal differences in races, and ANOVA was used to determine if there were statistically significant differences in the responses. The 2 null hypotheses were rejected, indicating there were differences in motivational factors among players of different races and economic levels.

46. JAMES, Joseph J. An analysis of the so-called "riser ball" in the underhand softball pitch. M. S. in Physical Education, 1971. 40 p. (E. S. Roundy)
Forty-five pitches were photographed with the use of 2 high speed cameras. Constant counterclockwise rotations averaged 20.9 revolutions per sec. for the 43' of the pitch with a velocity of 85.1 ft./sec. and had positive revolutions per sec. for the 43' of the pitch with a velocity of 86.7 ft./sec. and had a negative deviation. In the first 5 or 6 ft. of the pitch there was no arc, but thereafter the ball assumed a flattened out parabolic arc. Therefore, the belief that the ball "broke" was found to be a fallacy.

47. JOHNS, Arthur P. An evaluation of the positions secured and the preparation received by male graduates from the physical education department at Brigham Young University from 1966-1970. M. S. in Physical Education, 1971. 86 p. (E. S. Roundy)
A questionnaire was used to survey 326 graduates (percentage of return 63.1). The majority of the PE teachers taught in junior or SHS. They usually coached 2 or 3 sports per yr. The program of professional preparation at BYU was adequately preparing its graduates for their first teaching position.

48. JOHNSON, Robert M. Attitude toward physical education. Ed. D. in Physical Education, 1971. 108 p. (E. S. Roundy)
Pre- and post-tests were given to male students enrolled in service classes during the fall semester of 1970-71 using the Wear Attitude Scale, Forms A and B. The male students had favorable attitudes toward

PE at the beginning and conclusion of the fall semester. There was no difference in attitude toward PE between selected subgroup categories.

49. KNAAK, Calvin O. A biography of Dr. Edwin R. Kimball. M. S. in Physical Education, 1971. 152 p. (E. S. Roundy)
Eddie was born October 25, 1903, in Logan, Utah, to Mary and Crozier Roberts Kimball. Three mon. after his birth, the Kimball family moved to St. David, Ariz., and then 7 yrs. later moved to Widtsoe, Utah. In 1913 the Kimball family moved to a farm near Jordan, Utah, where Eddie graduated from high school in 1922. He then attended Brigham Young University, where he graduated in May 1926. Following several yrs. of teaching in 3 Utah SHS, he was asked to join the BYU staff as a football coach and teacher of accounting. Soon after that, his teaching career was interrupted from 1942 through 1946 as he served in the U. S. Naval Air Force. Following his discharge from the Navy, Eddie returned to BYU, where he was very active in the university and church activities.

50. LAMPH, James A. Analysis of items to be included on a physical examination form for the high school athlete in the state of Utah. M. S. in Health Science, 1971. 58 p. (R. M. Watters)
Physical examination forms were obtained from throughout the state. Eighteen medical doctors and 25 coaches on the SHS level acted as a jury of experts by evaluating items as either essential, desirable, undesirable, or unacceptable. All items that received 60% or higher of the responses in the desirable or essential category were accepted and recommended for a proposed physical examination form.

51. LIDDELL, Thomas R. An analysis of air contaminants and a correlation with traffic volume and automobile emissions in selected areas of Utah Valley. M. S. in Health Science, 1971. 111 p. (R. M. Watters)
The atmospheric concentrations of carbon monoxide, nitrogen dioxide, and ozone significantly increased as traffic volume increased, and decreased as traffic volume decreased. Traffic volume increase and decrease had no significant effect on the amounts of particulates recorded.

52. LOCKHART, Barbara D. Personality factors of university women in relation to their attitudes toward physical education and physical activity. Ed. D. in Physical Education, 1971. 102 p. (E. S. Roundy)
Each of 200 college women Ss completed a battery of 3 tests, the Cattell 16 PFI, Form A, the Kenyon Attitude Toward Physical Activity Scale, Form DW, and the Wear Physical Education Attitude Inventory, Short Form A. Intercorrelations were calculated on the 32 variables in the study and multiple rs were run with each of the 20 personality factors as criterion variables to determine if there was a relationship between personality factors and attitudes toward physical activity and PE. Of the 20 personality factors 16 related significantly to positive attitudes toward physical activity and 4 of the factors related significantly to positive attitudes toward PE. There was a positive relationship between factors depicting a healthy personality and positive attitudes toward physical activity.

53. MCLAREN, John David. The effectiveness of videotape replay in teaching the high jump. Ed. D. in Physical Education, 1971. 71 p. (E. S. Roundy)
Seventh grade students (N=160) were divided into 4 classes, 40 Ss per class. Each of the 4 treatment groups was represented in each class. There were 2 instructors involved, each teaching 2 of the 4 classes. A pre- and post-test was administered, and the only criterion measure was

height jumped. Form was not judged. ANCOVA showed no significant difference between any main source or interaction ($p>.05$). However, there was significance ($p<.10$) between the control and the 3 other treatments. Paired t-tests indicated that significant M gains took place in the television and traditional teaching groups ($p<.05$), with no significant change in the control and practice only groups.

54. MITCHELL, Hal D. The design and testing of football protective equipment for the shoulder, hip, and thigh. Ed. D. in Physical Education, 1971. 110 p. (E. S. Roundy)

Tests were administered to compare the protection provided athletes in a new system with that afforded by traditional designs. Further testing was accomplished to compare the performance of athletes in the newly designed gear with their performance in traditional uniforms. The null hypotheses were rejected ($p<.05$). The alternative hypotheses, that the experimental gear was superior to traditional in affording protection and freedom, was accepted.

55. NATIVIDAD, Stan E. The effect of elevated track shoes on high jumping. M. S. in Physical Education, 1971. 30 p. (E. S. Roundy)

The 1.14 in. difference between the height jumped with elevated shoes and regular shoes was statistically significant ($p<.05$). It also became obvious that the day on which the jump was made affected the height attained. The M heights of the first jumping day were significantly lower than the following 3 days.

56. OBORN, Lynn F. An anatomical and mechanical study of the tibialis posterior and peroneus longus using amputated limbs. M. S. in Physical Education, 1971. 57 p. (E. S. Roundy)

Ten fresh below-knee amputated specimens were prepared and attached to a supporting frame in such a manner that resistance could be given to plantar flexion and forces could be applied to the tibialis posterior and peroneus longus tendons in their normal line of pull. The resistance of plantar flexion increased the total force requirements on these muscles, as well as increasing the difficulty in initiating and maintaining their motion through the usual range. Only when the mid-point in the range of ankle motion was reached was any significant motion possible with ease. The difficulty with which the tibialis posterior and peroneus longus muscles moved the ankle through its range suggested their inability to contribute significantly to ankle plantar flexion in functional activities.

57. POND, David C. The contribution of activities for fitness toward the development of strength and endurance. M. S. in Physical Education, 1971. 44 p. (E. S. Roundy)

A control group (N=40 males) did not participate in PE classes while an exp. group (N=30 males) participated in activities for fitness classes. Activities for fitness were found not to contribute toward the overall development of strength or endurance. Activities for fitness contributed to development of left grip strength.

58. RIFE, Frank N. The contribution of water polo toward the development of strength and endurance. M. S. in Physical Education, 1971. 69 p. (E. S. Roundy)

Male college Ss were placed in 2 groups, control (N=40) and exp. (N=43). The control group did not participate in PE classes while the exp. group participated in water polo. Water polo did not contribute toward the development of left grip strength, leg strength, body wt., back strength, chins, total strength, right grip strength, or arm strength.

59. ROH, Leslie. An analysis of the reasons given by the most sought-after basketball players regarding their selections of institutions of higher learning. M. S. in Physical Education, 1971. 44 p. (E. S. Roundy)

Fifty-one of the most sought-after SHS basketball players of the 1969-70 season submitted reasons regarding their selection of institutions of higher learning. The data obtained from a questionnaire were analyzed on a percentage basis and mean weightings. Within limitations of the study, the following major conclusions are justified. Coaching staffs and basketball traditions were the most influential factors in the prospective student-athletes' decisions in their selection of institutions of higher learning.

60. RYDALCH, Donald D. A study to identify and analyze biographical factors which predict player success in junior college football. Ed. D. in Physical Education, 1971. 100 p. (E. S. Roundy)

Data were collected on 812 football players from 17 junior colleges located in 8 states. Head football coaches at the participating colleges rated their own individual players and the ratings of the coaches were analyzed by multiple correlation and regression analysis. The 12 independent variables which were analyzed were significantly related to football success ($p<.01$); 6 factors--honors, speed, wt., team record in SHS, ht., and size of SHS were selected as those variables with the highest relationship to success.

61. SHOUMAN, Craig E. A comparative study of two training programs and their effect on the vertical jump. M. S. in Physical Education, 1971. 54 p. (E. S. Roundy)

Subjects (N=39) were randomly assigned to 1 of 3 groups. One group (N=14) trained knee extension muscles on a Universal Gym Machine; another group (N=17) trained knee extension muscles by riding a bicycle; and a control group (N=8) received the same basic upper body wt. training program. The results indicated that wt. training was more effective than bicycling for the development of vertical jumping ability. There was no significant difference among the groups in cardiovascular endurance.

62. SOARES, Joaquin. The effect of arm rotator strength and arm extension strength upon increase of the volleyball spiking speed. M. S. in Physical Education, 1971. 44 p. (E. S. Roundy)

No significant relationship was found between rotator arm strength, extensor arm strength, and volleyball spiking speed. However, a significant increase in spiking speed occurred for all Ss during the course of observation. This would indicate that other factors, e.g., learning and improved coordination, are more important than strength in improving spiking speed in beginning volleyball players.

63. WATTS, Marcia Ann. The effects of motor activity for psychological rehabilitation. M. S. in Physical Education, 1971. 101 p. (E. S. Roundy)

A control group (N=13) and an exp. group (N=13) received group therapy from the counseling service at BYU. Only the exp. group participated in an 8-wk. daily activity course. No effects on self-concept and attitude toward physical activity were observed for the exp. group but the psychosis and physical fitness level of the Ss were affected.

64. YEARSLEY, Nathan L. An analysis of the quasi-legal sources for drug abuse in Utah County. M. S. in Health Science, 1971. 62 p. (R. M. Watters)

Subjects were selected from 9 categories of persons within Utah County, Utah. The respondents (N=50) chosen for the study were knowledgeable

about drugs and drug abuse by the nature of their employment of personal experience. Each S was interviewed and asked to respond to various statements relating to quasi-legal drug abuse. There was relatively little consistency among the respondents as to what drugs were most often obtained in a quasi-legal manner, the methods used to obtain these drugs, and the recommendations which should be implemented to curtail the problem. The most consistency was in relation to the sources available for obtaining the drugs in a quasi-legal manner.

65. ZELLER, Michael B. The effect of fatigue on throwing accuracy of a football. M. S. in Physical Education, 1971. 37 p. (E. S. Roundy)

Seven college varsity and fresh. quarterbacks were Ss. Each performed 4 accuracy tests over a 4-day period. Two tests were at 20 yds. from the target, 1 where the subjects were in a nonfatigued state and 1 where they were in a fatigued condition. Ss threw at a target and areas where the football hit were recorded. ANOVA showed that fatigue affected throwing accuracy at 20 yds. but not at 40 yds. Certain throwing tendencies caused by fatigue were observed.

Brooklyn College, Brooklyn, New York (N. Doscher)

66. BERLIN, Martin. An analysis of the Bedford Stuyvesant Evening Community Center Program sponsored by the New York City Board of Education. M. S. in Education, 1971. 97 p. (W. Theobald)

Analyzed was the status of opportunities for REC afforded by a group of evening centers in a depressed community in Brooklyn. Shortcomings resulted in these recommendations: centers should be opened on holidays and every night of the wk.; centers should be located closer to the actual homes of the participants; more paraprofessional help should be trained and paid to aid the teachers; full-time REC leaders should replace the large number of teachers now working in the centers on a second job basis; the current limited programs should be expanded; and more rooms in the schools where these REC programs exist should be used in the work.

67. THOMPSON, DeWitt. An attitude scale to measure the attitudes of physical educators toward their profession. M. S. in Health and Physical Education, 1971. 25 p. (N. Doscher)

Through the application of the Likert technique a large number of statements on attitudes toward PE were developed. They were submitted to juries which decided upon their positive or negative character. The tests were then administered to a large no. of chairmen of departments of PE in SHSs as well as to an even greater no. of PE teachers in these schools. Results indicated that teachers do have a positive attitude toward PE, and that the chairmen also do, but to a lesser degree.

University of California, Berkeley, California (D. B. Van Dalen)

68. KATCH, Frank Irwin. Optimal duration of a heavy work endurance test in relation to oxygen intake capacity. Ed. D. in Physical Education--Educational Curriculum, 1970. 54 p. (F. M. Henry)

69. KATCH, Victor L. The role of physiological determinants in endurance and work rate performance. Ed. D. in Educational Curriculum, 1971. 40 p. (F. M. Henry)

70. KNECHT, Harry George. Relationship between kinesthetic abilities and gross motor task performance with increasing practice for sixth and seventh grade boys. Ed. D. in Educational Curriculum--Physical Education, 1970. 126 p. (M. L. Norrie)

71. MARNHAM, Raelene Dawn. Efficiency of aerobic compared with anaerobic work. M. A. in Physical Education, 1970. 56 p. J. H. Wilmore

72. MURPHY, Lawrence Ian. Age and sex differences in isokinetic strength in educable mentally retarded children. M. A. in Physical Education, 1971. 78 p. (G. L. Rarick)

73. OSTARELLO, John Z. The two-factor consolidation theory and its relation to motor learning. Ed. D. in Educational Curriculum--Physical Education, 1971. 63 p. (F. M. Henry)

74. PERRONE, Cornelia Johanna M. Age differences in the effects of uni-lateral and cross-lateral eye-hand dominance on the performance of a perceptual-motor task. M. A. in Physical Education, 1970. 54 p. (M. L. Norrie)

75. POTHIER, Nance Lee. Anthropometric measurements, flexibility, and performance of Negro and white four- and five-year-olds. M. A. in Physical Education, 1970. 65 p. (J. Royce)

76. SCOTT, Mary Kathryn. The motor performance of motor learning rates in the non-dominant hand of children as a function of laterality, age and sex. M. A. in Physical Education, 1970. 35 p. (G. L. Rarick)

77. SPATZ, Thea Siria. Relationship between and within individual variation for kinesthetically monitored arm positioning reproduction. M. A. in Physical Education, 1971. 36 p. (M. L. Norrie)

78. SVOBODA, Milan David. Cumulated steady-state fatigue and recovery. Ed. D. in Educational Curriculum--Physical Education, 1970. 52 p. (F. M. Henry)

79. TODOR, John Ivan. The interrelationship of kinesthetically monitored distance and force reproduction tasks. M. A. in Physical Education, 1970. 57 p. (M. L. Norrie)

80. WILLIAMS, Leslie Robert Tumoana. Refractoriness of a movement to directional change. Ph. D. in Physical Education, 1970. 46 p. (F. M. Henry)

University of California, Los Angeles, California (J. F. Keogh)

81. CATHCART, Brian Wesley. Development of a pattern for the comparative study of physical education in Canada and the United States. M. S. in Physical Education, 1971. (B. W. Miller)

82. GRIFFIN, Patrice Suzanne. Kinesiological and physiological analysis of a modern dance routine. M. S. in Physical Education, 1971. (L. E. Morehouse)

83. MAHLER, Michael Thomas. An analysis of running by simultaneous cinematography and telemetered electromyography. M. S. in Physical Education, 1971. (G. W. Gardner)

84. MALNEKOFF, Jon L. The first fifty years--a history of the Department of Physical Education of the University of California, Los Angeles, 1915-1965. M. S. in Physical Education, 1971. (B. W. Miller)

85. MCDOWELL, Peggy Joanne. The role of sports and recreation in the organized Protestant Church since 1945. M. S. in Physical Education, 1971. (B. W. Miller)

86. MONROE, Mary Diane. The effect of specific training on performance of the volleyball spike. M. S. in Physical Education, 1971. (G. Egstrom)

87. REID, Gregory Daniel. Attitudes of selected motor ability groups toward physical education. M. S. in Physical Education, 1971. (B. J. Cratty)

88. SCOTT, Richard Jerry. The relationship of statistical charting to team success in volleyball. M. S. in Physical Education, 1971. (R. A. Snyder)

89. SELIGMAN, Leslie Stuart. Force control in pre-adolescent boys and girls. M. S. in Physical Education, 1971. (J. F. Keogh)

University of California, Santa Barbara, California (V. Skubic)

90. RHODES, Rita K. Comparison of two recovery methods from strenuous exercise. M. A. in Physical Education, 1971. 54 p. (E. D. Michael)

Following a treadmill run of 6 mph for the females (0% slope) and $7\frac{1}{2}$ mph for the males (0% slope), each S was tested once with a standing recovery and once with a walking recovery. The exercise lasted 5 min., and the recovery periods were 10 min. There was no difference in the payment of the O_2 debt in either recovery method. The time for HR, $\dot{V}O_2$, and $\dot{V}_E$ to recover was similar for both men and women regardless of the recovery method.

91. WOOD, Daniel Thomas. A comparison of aggression between athletes and nonathletes. M. A. in Physical Education, 1971. 63 p. (V. Skubic)

The Buss-Durkee Hostility Inventory, measuring 8 subfactors of aggression, was administered to 312 college male and female athletes and nonathletes. Ss were operationally defined as athletes if they participated in competitive athletics 12 or more hrs. per wk. Ss having 2 or less hrs. of participation per wk. were deemed nonathletes. The male and female athletic groups had significantly lower assault and lower total aggression scores than the male and female nonathletic controls. Male athletes were less suspicious and less resentful than the male nonathletic groups, while female athletes were less suspicious but more resentful than both the male athletes and female nonathletes. Female athletes were also found to be more irritable than male athletes. Of the 5 athletic groups tested, baseball, wrestling, football, basketball, and tennis, the wrestling group had the highest assault and total aggression scores while the football team had the lowest of these scores. All of the athletic groups had significantly lower guilt scores than the nonathletes.

Central Michigan University, Mt. Pleasant, Michigan (Eunice E. Way)

92. POLL, Toni L. A syllabus for teaching beginning jazz dance within the confines of a secondary girls physical education class. M.A., 1971. 86 p. (F. B. Koenig)
A presentation of lessons in jazz dance was critiqued in 2 ways: viewing of audiovisual film of 1 lesson as performed by each of 3 demonstration classes and observing lesson #1 taught to a naive group of SHS girls.

93. URBAN, Sarah B. The effect of specific feedback emphasizing velocity and angle of protection of the softball throw for distance of third grade boys and girls. M.A., 1971. 53 p. (R. Bole)
This study involved a control group enrolled in a regular PE program and an exp. group taught the overarm throw for distance indoors using a wall target to control angle and stop watch readings to determine velocity. There were no significant differences. It is believed that the indoor method may be used as a substitute method of teaching when outdoor facilities are not available.

Central Missouri State College, Warrensburg, Missouri (M. E. Lyon)

94. DEGROAT, Patricia Dolan. The effect of selected perceptual-motor skills on reading. M.S. in Physical Education, 1971. 62 p. (M. E. Lyon)
One first grade class (N=21) was given exp. perceptual-motor skills from the introductory section and first 2 programs of Getman's Developing Learning Readiness during their regular PE classes for 1 semester. A control class (N=23) participated in the traditional PE program. Scott, Foresman and Company reading tests, "The Three Pre-Primers" and "More Fun With Our Friends" were used as pre- and post-tests. ANCOVA in multiple regression form revealed that post-reading test scores for the exp. group were significantly higher ($p<.01$) than those of the control group.

95. VINSON, Joseph J. A comparison of accuracy in sixth and seventh grade girls using the one-hand set shot versus the two-hand set shot in basketball. M.S. in Physical Education, 1971. 51 p. (R. N. Tompkins)
Sixty-six girls were divided into 2 groups on the basis of McCloy's Classification Index III. One group was taught the 1-hand set shot and the other was taught the 2-hand shot. After 12 practice sessions of 34 shots from a spot behind the free throw line and outside the circle, ANOVA revealed no significance ($p>.05$) between the groups during the practice sessions. Multiple regression analysis revealed no significance ($p>.05$) between the final test scores.

Central Washington State College, Ellensburg, Washington
(R. N. Irving and J. M. Pearson)

96. BECK, John A. The grading of men's physical education activities in the small four-year colleges of Oregon, Washington, and California. M.Ed. in Physical Education, 1970. 44 p. (E. A. Irish)

97. BLEVINS, Dean A. A study designed to establish norms of the Marine Corps physical fitness test utilizing somatotypes. M. Ed. in Physical Education, 1971. 82 p. (E. A. Irish)

98. BROTHERS, Merl E. Tee-Ball. M. Ed. in Physical Education, 1970. 49 p. (J. G. Nylander)

99. BYRNES, Curtis Lowell. Developing an opt[illegible] scanner card for computerized football scouting. M. Ed. in Physical Education, 1970. 58 p. (E. A. Irish)

100. CLAPP, Laura Susan. The influence of selected individuals on the acquisition of fundamental motor skills of girls. M. Ed. in Physical Education, 1971. 57 p. (R. N. Irving)

101. GASTON, James H. The effects of a perceptual-motor training program on the development of motor perception skills in kindergarten children. M. Ed. in Physical Education, 1970. 67 p. (E. A. Irish)

102. GREGORY, Donna J. The effects of a movement education program on the perceptual-motor development of kindergarten and grade one students. M. Ed. in Physical Education, 1970. 83 p. (B. J. Putnam)

103. MATAYA, Larry. The effect of circuit training on the physical fitness of fourth grade boys and girls compared to traditionally accepted calisthenics. M. Ed. in Physical Education, 1970. 71 p. (E. A. Irish)

104. MIDDLETON, Leon J. Effects of remedial physical education on selected migrant students. M. Ed. in Physical Education, 1970. 91 p. (R. N. Irving)

105. MOFFITT, David. A measure of basketball skill for fifth and sixth grade boys. M. Ed. in Physical Education, 1970. 71 p. (J. G. Nylander)

106. MOORE, Marilyn A. Competitive team sports for women in Lae, New Guinea. M. Ed. in Physical Education, 1971. 115 p. (B. J. Putnam)

107. PEDERSON, Robert. Effectiveness of the problem solving method in coaching junior high basketball. M. Ed. in Physical Education, 1970. 52 p. (J. G. Nylander)

108. SIM, John. Comparison of a barbell weight training program to a Universal Gym weight training program on the development of leg strength in secondary boys. M. Ed. in Physical Education, 1970. 46 p. (E. A. Irish)

109. SIPE, Darren. Greco-Roman wrestling; moves, counters, and drills with a 16mm instructional film supplement. M. Ed. in Physical Education, 1970. 116 p. (E. A. Irish)

110. SNOW, Ronald Dwaine. The effect of athletics on the athlete. M. Ed. in Physical Education, 1970. 52 p. (R. N. Irving)

111. WILDMAN, Lonny D. A drug-abuse curriculum for Franklin Pierce High School. M. Ed. in Physical Education, 1970. 87 p. (W. Moore)

Chadron State College, Chadron, Nebraska (T. P. Colgate)

112. TAYLOR, Katherine R. The effect of an Exer-Genie exercise program on the anthropometric measurements of the waistlines of college age women. M. S. in Physical Education, 1971. 47 p. (T. P. Colgate)

The 101 Ss were divided into 2 groups and met twice a wk. for 10 wks. The exp. group performed 4 exercises on the Exer-Genie: sit-up, side bend, forward bend, and the midsection series. Initial to final M differences for the exp. group were not significant ($p>.05$), while there were significant differences for the control group ($p<.05$). Comparison of the M values between the groups indicated that the Exer-Genie program did not affect the waistline girth of college age women, but did show that the exp. group could at least maintain their waistlines, while the control group showed a significant increase.

Chico State College, Chico, California (R. K. Cutler)

113. BLACK, Louis Everett. Relationships of certain teaching methods to the acquisition of a selected motor skill. M. A. in Physical Education, 1971. 62 p. (K. E. Bowen)

The purpose was to determine the relationships between intelligence and the acquisition of the one-handed basketball freethrow shooting skills among selected JHS males. Males (N=150) enrolled in the 9th grade served as Ss and were classified into 6 specific practice groups. The individual groups, physical high intelligence, physical low intelligence, cognitive-physical low intelligence, cognitive high intelligence, and cognitive low intelligence, participated in designated training sessions for 10 days. The cognitive-physical practice method was the superior teaching technique and the physical practice method was very beneficial. Intelligence was not related to one's ability to make use of the physical and cognitive-physical teaching methods. However, the high intelligence group using the cognitive method benefited significantly more than the low intelligence group.

114. BURTON, Carl E. The relationship between league standings and current methods and materials employed for scouting football games in selected California high schools, 1968. M. A. in Physical Education, 1971. 119 p. (F. R. Reith)

Determined was the relationship between the amount of time spent by selected California coaches in scouting future opponents and their win-loss record. Championship coaches in 1968 were surveyed with questionnaires to determine what information is most essential for a scouting report. There were 3 areas of concentration developed in this study. Three separate questionnaires were used to obtain scouting information from 3 groups of coaches: those attending a Coach of the Year Clinic, 100 randomly selected coaches, and the championship coaches for the 1968 football season. Coaches' responses indicated the essential information to be included in the scouting report. A low correlation ($r=.07$) between the percentage of wins and the amount of scouting was found.

115. HENRY, William G. The relative effects of interval and distance running upon recovery pulse rates among selected intermediate school males. M. A. in Physical Education, 1971. 70 p. (R. K. Cutler)

Volunteer JHS males (N=52) participated in a 6-wk. training program. On the basis of a pretraining test, Ss were impartially paired and placed

into either the interval training group or the distance training group. There was no significant difference between the 2 training groups prior to the training program. A post-test indicated that the interval training group and the distance training group both significantly improved in their PRs. The difference in recovery PR between the groups was not significant.

116. LOWMAN, Ruth Lorraine. An investigation of grading systems currently employed in girls' physical education classes in selected secondary schools of northern California. M.A. in Physical Education, 1970. 81 p. (R. K. Cutler)

JHSs and SHSs (N=103) were surveyed by questionnaire and 59 schools responded. Findings revealed that the methods used in constructing PE grading systems varied widely in that no 2 schools constructed their grading systems in the same manner; that PE grades were used primarily for the purposes of reporting pupil progress and fulfilling graduation requirements; that much of the evaluation in PE was done by means of subjective analysis on the part of the teachers involved; and that less than 50% of the schools made use of techniques established for checking validity or reliability in a testing program.

117. PARENT, Virginia. The development of a system of notation for human movement with application to women's gymnastics. M.A. in Physical Education, 1971. 72 p. (B. L. Raker)

Devised was a system of notation for gymnastics that would enable a person to visualize the combinations in a routine, to visualize and study the mechanical and dynamic requirements of the sequence of each skill, and yet be simple enough to enable anyone capable of drawing stick figures to utilize the system to record human movement. The system was based on a simplified system for drawing human figures which was dynamically sound and mechanically accurate. Verbal cues were incorporated with the figure drawing in a format that permitted the reader to visualize whole segments of a routine between changes in direction. Charts of gymnastic compulsory routines were created in the notation system and sent to a panel of expert gymnastic judges and coaches for criticism and comment. The notation system did appear to be a medium for communicating gymnastic movement.

Teachers College, Columbia University, New York, New York (J. R. Higgins)

118. JACOBS, Dorothy. The development of a film for teaching movement. Ed. D. in Dance, 1971. 105 p. (R. Kraus)

A film representing a personal approach was produced for use as a teaching aid, and a study guide was prepared. The 20-min., 16 mm. film, "Focus on Movement," is a black-and-white sound film concerned with movement in daily life. The film was primarily directed toward a secondary school dance audience, and can serve as a stimulus for discussion and the exploration of movement. Scenes include people moving: walking, sitting, standing, talking, and gesturing. "Focus on Movement" aims at providing selected experiences in the observation of movement and gesture in order to increase the viewer's awareness of and sensitivity to movement. Specific sections of the film were designed to create an awareness of the beauty in movement around us (in nature and in everyday tasks), to show the structure of movement, similarities and differences in the way people move, and an awareness of what causes people to change their movements. The 17 lessons in the study guide, intended as aids in presenting the concepts of the film, cover observation, discussion, and exploration of movement themes suggested by the film.

119. WRIGHT, William H. A study of professional preparation programs in physical education for men at predominantly Negro, state-supported institutions of higher education. Ed. D. in Physical Education, 1970. 173 p. (W. G. Anderson)

A questionnaire and an interview schedule were developed and administered during the visitations of 26 institutions in 14 states to collect data pertaining to the status of programs and problems encountered in the professional preparation process. Data pertaining to the status of programs were analyzed and reported under 6 subtopics: General, Faculty, Student, Curriculum, Facilities, and Administration. Tape recorded responses to the interview schedule provided detailed descriptions of problems as perceived by administrators. Problems (83) which satisfied the selection criteria were deductively classified into 18 subcategories. Subcategories of problems which included 5 or more problems were designated as major problems. The 7 major problems which encompassed 69 of the problems identified were: admission practices, facilities, faculty (dual responsibility and specific areas of specialization), supplies and equipment, and budget. The remaining problems were classified into 11 subcategories. Detailed descriptions of major problems were analyzed to identify departmental factors which seem to underlie the problems. Seven recommendations for alleviating major problems were considered to be within the performance capacity of departments participating in the study.

Drake University, Des Moines, Iowa (N. Tremble)

120. BENNETT, David. Sex education as viewed by local school superintendents in Iowa class AA school systems. M. S. in Physical Education, 1970. 55 p. (N. Tremble)

121. HENDRICKS, Donald. Factors influencing the number of participants in interscholastic football in selected Iowa high schools: 1960-69. M. S. in Physical Education, 1970. 67 p. (C. Heilman)

122. OWENS, Richard. Health and safety conditions of wrestling practice areas in sixty-four AAA Iowa high schools. M. S. in Physical Education, 1970. 75 p. (N. Tremble)

123. PARKER, Loren G. A history of interscholastic high school wrestling in Iowa. M. S. in Physical Education, 1970. 37 p. (C. Heilman)

124. STROUD, Kathryn. Youth hostel movements in Iowa. M. S. in Physical Education, 1970. 153 p. (N. Tremble)

East Stroudsburg State College, East Stroudsburg, Pa. (J. R. Felshin)

125. BATES, Barry Thomas. The relationships of performances on lateral change of direction agility tests. M. Ed. in Health and Physical Education, 1970. 88 p. (A. L. Olson)

One hundred 17- and 18-year-old boys were tested on 8 agility tests designed by the investigator. Turning rate was an important factor in determining performance scores. The relationship between distance and agility performance was not conclusive. The number of better performances on the second trial was significant ($p < .01$). Agility tests must be administered more than once to achieve reliable results. A study of

the relationship between selected anthropometric measures and agility produced no substantial results.

126. CAFARELLI, Enzo. A quantitative study of the relative contribution of selected anthropometrical measurements, isokinetic strength and the application of force to the performance of the standing broad jump. M. Ed. in Health and Physical Education, 1970. 92 p. (H. Weber)

127. CARUSO, Virginia M. The effect of Jacobson's relaxation training on differential relaxation of biceps and triceps brachii. M. Ed. in Physical Education, 1971. 104 p. (H. Weber)
For a period of 4 wks., 3 50-min. sessions per wk., 17 Caucasian fresh. and soph. women at East Stroudsburg State College were trained in Jacobson's Scientific Method of Relaxation. Using an independent 2-group design composed of experimentals and controls, quantitive EMGs were taken pre and post on the biceps and triceps brachii of the ipsilateral arm while performing 3 tasks with the contralateral arm: hand press, weight lift and dynamometer squeeze. There were significant reductions in muscular tension of the biceps brachii for the hand press, weight lift and dynamometer squeeze tasks and in the triceps brachii of the hand press and dynamometer squeeze tasks ($p<.05$). No significant difference was demonstrated in the triceps brachii on the weight life task.

128. DAVID, Mary. A comparison of sportsmanship attitudes of selected groups of college women at East Stroudsburg State College. M. Ed. in Health and Physical Education, 1970. 48 p. (L. E. Evans)

129. HAYNE, Bruce. Measurement of selected physiological indices in high school wrestlers. M. Ed. in Health and Physical Education, 1970. 55 p. (H. Weber)

130. HESS, Charles J. The relationship between the American Association for Health, Physical Education, and Recreation basketball skill tests and judges' ratings of basketball players' ability. M.Ed. in Physical Education, 1971. 62 p. (J. L. McKeon)

131. HOFFMAN, Jerry. Isometric and isotonic exercise on the muscular strength development of the elbow extensor muscle group. M. Ed. in Physical Education, 1971. 46 p. (A. L. Olson)
White male PE major students (N=19) were administered a muscular strength composite pretest as well as separate tests of isokinetic, isometric, and isotonic strength. Ss were randomly assigned to one of 4 groups. The 3 exp. groups exercised isokinetically, isometrically, or isotonically 3 times a wk. for a period of 6 wks. Pretest and posttest differences among isokinetic, isometric, and isotonic exercises were not significant (ANOVA, $p>.05$).

132. MIHALOVICS, Lajos. The effects of artificial drag and load on the performance of the 200-yard run. M. Ed. in Health and Physical Education, 1970. 42 p. (H. Weber)

133. NEARING, Ruth. A comparison of skill achievement and fear reduction in beginner swimmers taught by two different methods. M. Ed. in Health and Physical Education, 1970. 110 p. (H. Weber)

134. ROETHKE, Walter. The effects of three different treatments upon the rate of recovery from fatigue in competitive swimming. M. Ed. in Health and Physical Education, 1970. 29 p. (C. P. Wolbers)

135. SHOEMAKER, Layton. Comparisons between personality concepts of self and of typical majors among male non-majors and majors in physical education. M. Ed. in Health and Physical Education, 1970. 84 p. (E. E. Stish)

136. SHOLLENBERGER, Allen. The effectiveness of foul shooting practice in relation to rated reaction under pressure. M. Ed. in Health and Physical Education, 1970. 28 p. (G. F. Ockershausen)

137. WAGNER, Lois E. The effect of isokinetic exercise on the transfer of strength to the contralateral arm. M. Ed. in Health and Physical Education, 1970. 76 p. (A. L. Olson)

Eighteen female Ss were used to determine the effect of an isokinetic exercise program of the ipsilateral elbow flexors. The exp. group participated in a training program 3X/wk. for 5 wks. at 6 different exercise speeds. Measures were taken of strength, force, power and electromyographical activity during the pre- and post-tests. Isokinetic exercise of the ipsilateral elbow flexors resulted in a transfer of strength to the contralateral elbow flexors at exercise speeds of 15 rpm's or less.

138. WIEDER, Donald. Illustrated progressive contact spotting and teaching techniques for selected skills on the horizontal bar. M. Ed. in Health and Physical Education, 1970. 125 p. (E. L. Shay)

Eastern Illinois University, Charleston, Illinois (W. S. Lowell)

139. BOWARD, Howard Thomas. The effects of a 12-week progressive jogging program on selected physiological and psychological parameters of an obese subject. M. S. in Physical Education, 1971. 38 p. (M. T. Woodall)

A case study was used to measure the effects of a 12-wk. progressive jogging program on selected physiological and psychological parameters of an obese S. The physiological parameters were: BMR, anthropometric measures, cardiorespiratory function, and performance runs. The psychological instruments were Adjective Check List, CPI, and MMPI. The S was 28.3 years of age, wt. 109.09 kgs, 181 cm tall, and had led a sedentary life. The study revealed there were losses in all anthropometrical measures obtained and in body wt. An improvement in several aspects of circulorespiratory function was also noted. The psychological testing revealed inconsistent responses resulting from S's complex personality.

140. BROWN, Charles G., Jr. A comparison of circulatory responses to weight-supported exercises in moderately obese subjects. M. S. in Physical Education, 1971. 59 p. (M. T. Woodall)

Parameters considered were $\dot{V}_E$, $\dot{V}O_2$ and HRs, during and in recovery from exercise (male S's, N=14). The wt.-sup. ex. was performed by riding on a bicycle ergometer and the non-wt.-sup. ex. was performed by running on a treadmill. The moderately obese Ss had a M body fat of 20.6%, a body wt. of 106.82 kgs, and a M body surface of 2.26 m_2. All Ss had previous experience in bicycle riding and running in PE classes. Half the Ss were tested first on the bicycle ergometer, while the other 1/2 were tested first on the treadmill. The order of testing was then alternated so that all Ss were evaluated on both tests. A t test indicated higher circulatory and respiratory values were obtained during the non-wt.-sup. ex. than during the wt.-sup. ex.; therefore, the treadmill would appear to provide a superior test of circulorespiratory functions.

141. CAMPBELL, Leon. A comparison of two methods of running to first base. M. S. in Physical Education, 1971. 41 p. (J. W. Sanders)

Ss (N=48) hit a ball suspended on a cord and then ran to first base, either looking at a light (simulating a ball) or directly at the base. A timing device (recording to nearest .001 sec.) was activated when the ball was hit and stopped upon S's contact with the base. A t test showed no significant difference between or within the groups. Ss included skilled (varsity baseball players) and nonskilled (activity class members).

142. CONROY, Michael J. The effects of a ten-week jogging and running program on an obese subject. M. S. in Physical Education, 1971. 76 p. (M. T. Woodall)

The S was 17.7 yrs. old, male, initially weighed 97.64 kgs and was 175 cm tall. S was moderately active before the investigation involving 59 formal and informal training sessions. Initial aerobic work was performed via an interval method of training. The S was gradually conditioned until he could perform continuous submaximal runs up to 8 mi. without rest intervals. Final measurements indicated: a noticeable loss in body wt. and losses in all the anthropometric measures recorded; lower SBP, HR, and $\dot{V}O_2$ measures during resting conditions; lower HR's during submaximal work; increased running time, $\dot{V}_E$, and $\dot{V}O_2$ during maximal work; lower recovery HR's and SBP recordings; a more rapid return to normal of SBP and DBP and HR meas. during recovery.

143. FIX, David E. The effects of warm-up duration on the physiological responses of trained runners to a strenuous treadmill test. M. S. in Physical Education, 1971. 74 p. (M. O'Brien)

Effects of 2 warm-up durations, 30 min. and 60 min. were observed on the physiological responses to a standardized strenuous treadmill test. Measurements were recorded at intervals during the treadmill test to determine M skin temp., rectal temp., $\dot{V}_E$, $\dot{V}O_2$, and HR. Varsity (N=29) distance runners were used as Ss. Two warm-up schedules were conducted on an indoor 220-yd. track with an electric wall clock. Throughout the warm-up and testing, realism, simulating an actual race situation, was emphasized. The treadmill test lasted 8.5 min. Speed, 9 mph, and grade, 6%, were set prior to the test. A t test was employed to determine the statistically significant difference between correlated pairs of means and showed no difference in the physiological effects of a 30- or 60-min. warm-up duration on the responses measured.

144. FLAMINI, Charles F. Dr. Charles P. Lantz, Eastern Illinois University, 1911-1952. M. S. in Physical Education, 1971. 77 p. (M. O'Brien)

Facts and data were presented chronologically concerning the life of Charles P. Lantz and his effect upon the development of PE and Athletics at E. I. U. His influence in the development of the IIAC Conference was also emphasized.

145. HIGGINS, Larry J. The history of football at Robinson SHS (Ill.), from 1919 to 1970. M. S. in Education, 1971. 281 p. (M. O'Brien)

146. JACKSON, Willie C. Explosive reaction time and running speed within and between college athletes and non-athletes. M. S. in Physical Education, 1971. 52 p. (M. T. Woodall)

Males, 94 athletes and 48 nonathletes, were tested. The t ratios and correlation matrices were determined and indicated that athletes are significantly faster than nonathletes for distances of 10 and 30 ft. Gymnasts possess significantly greater vertical jumping ability than football and

baseball players, and golfers. Tennis players are significantly quicker at 10 and 30 ft. than track and field men, baseball and football players. A significant relationship exists between vertical jumping ability and running speed for both athletes and nonathletes. There is no significant difference in reaction time and vertical jumping ability for athletes and nonathletes.

147. KNOTT, James B. The immediate effect of swimming and track competition on blood pH values. M. S. in Physical Education, 1971. 34 p. (W. S. Lowell)

Changes associated with blood pH and different exercise work loads during competition were investigated. Finger-tip blood samples (1 ml) were obtained from the varsity swim. and track teams of E. I. U., (N=33). Each swimming S competed in the 100; 200; 500- or 1000-yd. freestyle events. Each track S competed in the 440- or 880-yd. runs or the mi. or 2-mi. runs. Samples were taken prior to competition and between 3 and $7\frac{1}{2}$ min. after cessation of the event. The samples were analyzed with a Radiometer Micro-Blood pH Unit. The t and r techniques revealed that a drastic pH decrease occurred immediately after swimming and track competition; greater pH decreases occurred after the events of short duration and high intensity; relatively high positive correlations were found between the duration of the track event and the postexercise pH values; in all comparisons track events produced greater mean pH changes than comparable swimming events.

148. RICHARDI, Fred A. A survey of injuries related to physical education activities at Eastern Illinois University from 1960 through 1966. M. S. in Education, 1971. 69 p. (W. G. Riordan)

An examination of the accident reports turned in during the period studied revealed a range of 96 injuries reported in 1961 to 136 in 1960. Approximately 1/2 the accidents occurred during the fall season, with Oct. being the mo. with the highest number of mishaps and 4 p. m. the most vulnerable hour. Almost 1/2 the accidents were attributable to intramurals, followed by intercollegiate athletics and PE classes. Almost twice as many accidents were reported on outdoor play fields as on indoor facilities. 87% of the students were injured by falls or blows. The most common injury was a sprain with ankle most often involved. Over 1/2 the accidents occurred when a victim ran into an object or another person. Varsity football accounted for 136 accidents, closely followed by intramural basketball with 123, and intramural flag football with 112.

Florida State University, Tallahassee, Florida (P. W. Everett)

149. DENNIS, Maurice E. An evaluation of the Testmate Autocard system. Ph. D. in Physical Education, 1971. 143 p. (K. D. Miller)

Ss (N=123) were randomly assigned to 4 groups. One group served as controls and participated in a standard classroom method of instruction in passing, intersection, and emergency driving maneuvers. The other 3 groups served as exp. groups and were instructed in the same 3 areas through use of the Testmate Autocard System. Exp. Group I was tested with the Testmate Responder, a programmed testing device, exp. Group II without use of the Testmate Responder, and exp. Group III took no test in the instructional areas. Upon completion of the instruction, all Ss were given a road test designed to evaluate the 3 instructional areas. ANOVA revealed no significant difference between the road test scores

of the 4 groups. However, when compared individually with the other 3 study groups, exp. Group I had fewer road test errors than did exp. Groups II and III ($p<.01$) and had better knowledge test scores than exp. Group II ($p<.01$).

150. FELLOWS, Martha Lea. A study of Florida State University recreation graduates receiving Bachelor of Science and Master of Science degrees: 1952-1969. M.S. in Recreation, 1971. 74 p. (F. C. Cannon)

The purpose of the study was threefold: to determine how many FSU REC graduates entered the REC profession after graduation; to determine the recreators' motives for not entering or leaving the profession once they had entered; and to determine if the graduates perceived training at the FSU REC Curriculum as significant in their professional or personal lives. Of the 258 questionnaires mailed to all recreation alumni, 80% were returned. Nationally, 48% of graduates entered REC while 81% of FSU REC graduates entered REC occupations. Reasons for not entering or leaving the profession once entered were salary, family responsibilities, hrs. of work, and job not available in graduate's town. Sixty-three % rated their preparation as a general preparation for their work and 28% rated their preparation as specific. Courses in administration, supervision, and leadership were most helpful and program courses were least helpful.

151. FREISCHLAG, Jerry. A comparison of the effects of sex, competition, and ability on a perceptual motor task. Ph. D. in Physical Education, 1971. 76 p. (P. W. Everett)

Thirty male and 30 female college Ss performed a tracking task and were tested after they had learned to execute the rotary pursuit task. Competition was induced by offering monetary rewards. Average time-on-target scores for 4 30-sec. trials under each treatment were analyzed by ANOVA and Newman-Keuls tests with the S population additionally categorized by sex and ability level. It was found that males had higher time-on-target scores than females ($p<.05$). Differences ($p<.01$) were found among treatments, with same sex competition being superior for the total S population over cross-sex competition and no opponent competition. Males' scores were found to be highest under same-sex competition while females performed best under cross-sex competition. No significance was found between sexes and among treatments in terms of ability level ($p>.05$); however, significance was found between pairs of Ss of all 15 comparisons in terms of sex and treatments ($p<.05$).

152. MEWBOURNE, Roy L. A comparison of two starting movements by a baserunner stealing second base. M.S. in Physical Education, 1971. 29 p. (R. Byrd)

Twenty-six Ss were selected from the Florida State University baseball team and given 5 trials on each of the 2 starting methods. Before the actual testing, Ss were given 5 days of practice and instruction in each method. Ss were then randomly placed in 7 groups, the order of administration of the 2 methods also being designated at random. All testing was done between the hrs. of 8:00 p.m. and 10:00 p.m. in order to prevent possible diurnal variations in performance. The Dekan Automatic Performance Analyzer, Model #631 was used for the time of the 15 ft. sprints. The time of the trials started when the S lifted his right heel off a starting switch and stopped when the S broke a photo-electric cell beam. Raw sources were recorded to the nearest .00/sec. for each trial. A multiple analysis t test revealed that the "toed out" method was faster than the "cross-over" method ($p<.05$).

153. MURPHY, Thomas Michael. The relationship between the AAHPER youth fitness test scores and athletic ability in football, basketball, and paddleball. M.S. in Physical Education, 1971. 43 p. (R. Byrd)

Ninth grade boys, randomly selected from 3 area SHSs, were first given the AAHPER Youth Fitness Test and then instruction in 1 of the sports for a 6-wk. period. After this period of learning, Ss were evaluated by either the Borleske Touch Football Test, the Johnson Basketball test, or a round robin tournament in paddleball. The following conclusions were made: There was a significant positive relationship (r=.6161) between physical fitness and football skill (N=41). There was a significant positive relationship (r=.4021) between physical fitness and basketball skill (N=113). There was not a significant positive relationship between physical fitness and paddleball skill. While 2 of the 3 paddleball groups were not found to be significant, it is worth mentioning that the 2 groups were composed of 10 and 11 Ss, respectively. The other paddleball group, which had almost twice the number of students at 19, was found to have a significant positive relationship.

154. THOMPSON, Susan Shaw. The effects of activity group sessions on the frequency and quality of social interactions of selected patients at the Southwestern State Hospital of Georgia. M.S. in Recreation, 1971. 54 p. (F. Cannon)

Ss (N=20) who met the following conditions were selected: age, 18 to 55; ambulatory; diagnosis, schizophrenia; hospitalization more than 1 and less than 10 yrs. Ss were assigned randomly to either an experimental or 2 control groups (CI, CII). All Ss were pretested by counting and qualifying the interactions of the Ss at an arranged time by trained observers. The exp. group was then exposed to extra activities that were planned to improve the patients' social interactions. The CI was exposed to the investigator during the REC therapy planned by the hospital. CII was not encouraged to attend any REC therapy. A postobservation was made after 7 wks. of programming. Paired t ratios, ANOVA, and M gain t ratios found no significant change (p>.05) in frequency or quality of exp. over CI and CII. When the exp. group was observed in a small group setting, as opposed to the situation when all the Ss in the study were observed at the same time, significance was found (p<.05).

155. WHITTLE, Andrew Heath, Jr. The aftereffects of one night's sleep deprivation on selected physiological and psychomotor parameters. Ph.D. in Physical Education, 1971. 81 p. (K. D. Miller)

Tests of max. grip strength, relative grip endurance, visual RT, auditory RT, and work efficiency (O_2 consumption) were conducted on 23 volunteer male undergraduate and graduate students at Florida State University. Three pretest measurements were recorded for each parameter on 3 consecutive days, Ss were kept awake 1 night, followed by posttest measurements on 3 successive days. A paired t test was used to determine if observed differences between the pretest M and posttest performances were significant. There were no significant differences (p>.10) for max. grip strength as measured by the hand dynamometer. Relative grip endurance showed significant detrimental effects between pretest levels and posttest Day 2 scores, and performances on both visual and auditory RT produced similar results (p<.10) for Day 1. Work efficiency as measured by O_2 consumption while performing a submaximal work bout on the bicycle ergometer showed significant deterioration on all 3 posttests following 1 night's sleep deprivation.

George Williams College, Downers Grove, Illinois (B. L. Rothermel)

156. AUSTIN, Linda. The effect of instruction on throwing for distance among girls. M.S. in Physical Education, 1971. 20 p. (P. Healey)

157. CUMMINS, Jeanne. Staff response with a change in agency program. M.S. in Physical Education, 1970. 29 p. (J. Joseph)

158. DAVIS, Cecelia. An evaluation of selected health information published in six popular magazines. M.S. in Health Education, 1971. 84 p. (H. Westerberg)

159. DEGLER, Judith. Girls' attitudes toward a modular physical education schedule. M.S. in Physical Education, 1970. 23 p. (J. Meyers)

160. DI NUNZIO, Daniel. Activity for the maintenance of mental functions in later years. M.S. in Physical Education, 1970. 39 p. (D. Misner)

161. FELIX, Richard. College group opinions regarding intercollegiate athletics at four Nazarene colleges. M.S. in Physical Education, 1970. 75 p. (W. Bockwitz)

162. GORDON, Earl. Evaluation of the pulled-in infield at the high school level. M.S. in Physical Education, 1970. 21 p. (H. Walter)

163. GORTON, Beatrice. Evaluation of the serve and pass in women's volleyball competition. M.S. in Physical Education, 1970. 17 p. (J. Coleman)

164. HALLBERG, Robert. Professional preparations of men high school coaches in Cook County, Illinois. M.S. in Physical Education, 1970. 52 p. (W. Hughes)

165. LANGBEIN, Mary. Use of the voltmeter during neuromuscular relaxation practice. M.S. in Physical Education, 1970. 26 p. (J. Norris)

166. LANGBEIN, Walter. A comparison of two approaches for teaching neuromuscular relaxation. M.S. in Health Education, 1970. 36 p. (J. Norris)

167. MACLEOD, Margaret. Probable factors related to women's field hockey. M.S. in Physical Education, 1971. 27 p. (J. Coleman)

168. MARTIN, Langston. Survey of Chicago Area A elementary physical education program. M.S. in Physical Education, 1971. 50 p. (H. Westerberg)

169. RIZZO, Samuel. A point chart and its motivational effects. M.S. in Physical Education, 1970. 46 p. (W. Hughes)

170. SHAW, Donald. Measurement of reaction time as a function of karate belt rank. M.S. in Physical Education, 1971. 19 p. (P. Healey)

171. SISTKO, Robert. Tables of norms for primary-aged children in selected endurance tests. 45 p. (J. Joseph)

172. SORENSEN, Robert. Performance study of steel versus wooden tennis rackets. M. S. in Physical Education, 1970. 17 p. (W. Hughes)

173. VANKIRK, John. The effect of caffeine on the larval state of Drosophila. M. S. in Physical Education, 1970. 12 p. (P. Healey)

174. WALTER, Jane. Central Ohio secondary schools girls' physical education. M. S. in Physical Education, 1970. 33 p. (H. Westerberg)

175. WILLIAMS, Arline. A study of a cross-cultural mental health program. M. S. in Health Education, 1970. 51 p. (H. Westerberg)

University of Georgia, Athens, Georgia (R. T. Bowen)

176. CALANDRA, Gerald Neil. Relationships among selected traits of cardiovascular fitness and selected traits of personality. Ed. D. in Physical Education, 1971. 74 p. (M. F. Vincent)
Physiological scores were taken from the heartometer and psychological scores taken from the Guilford-Zimmerman Temperament Survey. Pretest and posttest measurements were taken with the exp. group participating in a circuit training program 3 times per wk. for 8 wks. and the control group participating in no activity. No significant relationships existed among the selected traits of personality and traits of cardiovascular fitness. An 8-wk. program of circuit training caused an increase in cardiovascular fitness as evidenced by significant changes in dicrotic notch amplitude, systolic amplitude, SBP, PR, and DBP for the exp. group. Participation in an 8-wk. circuit training program did not significantly affect measured personality traits.

177. DUGAN, David L. Perception of a first year recreation program by model neighborhood area residents. Ed. D. in Recreation, 1971. 115 p. (R. T. Bowen)
Using a structured interview technique, 1, 141 residents of a model neighborhood area were surveyed to determine their perceptions of a recreation program supported, in part, by a Model Cities Program Grant. Ss were selected according to predetermined age groupings and locations of residence. Awareness of the total program, the Model Cities component, and its impact on the community, was analyzed for difference by age group and location of residence. Teenagers were found to be the most aware group; differences were found between areas. Some lack of understanding of the Model Cities contribution was exhibited; however, the residents indicated a favorable awareness toward the various Model Cities projects. Levels of awareness ranged from near total ignorance to a high degree of perception of the recreation program and the meaning of the Model Cities Program to the community.

178. GOBER, Billy E. The physical education component of a competency based elementary education program. Ed. D. in Physical Education, 1971. 230 p. (R. T. Bowen)
A modification of the systems analysis approach was used to identify and develop the professional competencies required of potential ele school classroom teachers for the instruction of PE. The competencies are

written in behavioral terms with graded specificity contained in major, terminal, and proficiency objectives. Quality control of behavioral objectives and learning sources was accomplished by the jury technique. The competencies were divided into 5 modules or guides which direct the individual student learning behavior in the areas of physical growth, motor learning, movement analysis, evaluation, and curriculum methods. Diagnostic evaluation units were developed to determine learner's initial status in relation to the content to be learned. The learner's point of entry in the module, or exemption of the learning task, was accomplished through these assessment devices. Postassessments were designed to determine the learner's status after completion of a learning task. Instructional techniques and skills were evaluated through observation and examination of the products.

179. HARTSHORN, Helen Marion. A model for a dual programmed summer day camp for mentally retarded children. Ed. D. in Physical Education, 1971. 145 p. (M. F. Vincent)

The model set forth has a constant base with flexible horizontal and linear programs to fit the needs of identified groups. It was designed to be an on-going and progressive program which would contribute to the greater total development of the mentally retarded child through specialized program planning with an academic program in a completely recreational environment. The program was specifically designed to contribute to the social development associated with recreational activities, motor skill development associated with specialized PE activities, and the intellectual development associated with academic activities. The model included criteria for selection of personnel, selection of campers, facilities, administrative organization, evaluation of campers and programs. The model was evaluated by a panel of authorities in PE, special education, and REC.

180. HERRING, Hal Moreland. The development of defensive football in the National Football League from its beginning to the present time including a review of modern concepts and techniques. E. D. in Physical Education, 1971. 404 p. (B. W. Gabrielsen)

A historical study of defensive football in the National Football League was presented in the following eras: The beginning years 1895-1920, the organizational period 1920-1933, the transitional period 1933-1941, the war years 1941-1950, prosperity and television 1950-1960, and the modern era 1960-1970. Such factors as rule changes, identification of coaches, players, and teams that were responsible for change, teams who won championships, and their defenses, the statistical records of the best defensive teams, records of the changes in equipment and facilities which affected defensive football, and fundamental and present concepts of defensive football in the National Football League were included.

181. HILL, James Fred. Interrelations of reaction time, movement time, motor ability, and physical fitness of children five through eight years old. Ed. D. in Physical Education, 1971. 97 p. (M. F. Vincent)

Tests of RT, MT, motor ability, and physical fitness were administered to male (N=133) and female (N=123) subjects aged 5 to 8 yrs. Statistical treatment of data included ANOVA, multiple regression equations, and multiple correlation coefficients. RT decreased with advancing age and males proved to be significantly faster than females. All age levels were significantly different from each other for MT. RT and MT were significantly related, both were significantly related to motor ability, and both were significantly related to each of the measures of physical fitness. RT and MT as single predictors or in combination with each other were of significant value in the prediction of motor ability.

182. HOLLINGSWORTH, Jack D. A comparison of motor ability of mentally retarded children of specific mental and chronological ages and normal children. Ed. D. in Physical Education, 1971. 72 p. (R. H. Johnson)

Mentally retarded children were compared with normal children in motor performance on the Lincoln-Oseretsky Motor Development Scale. Age levels used were 8, 9, and 10; the mentally retarded groups were formed on the basis of both chronological and mental ages, the normal group was classified on chronoligical age. The mentally retarded grouped according to mental age were significantly superior to the normal group in motor performance, while the normal group was superior to the mentally retarded-chronological age group. Positive progression of motor performance was found in each group classification from one age level to the next higher level. The relationship of motor performance to intelligence was found to be low but positive in the mentally retarded group but was essentially zero for the normal group. Based on the motor performance criterion, there appears to be no justification for placing educable mentally retarded students in PE programs with intellectually normal children. The Lincoln-Oseretsky Motor Performance Scale provides for a total measure of motor development.

183. LITTLE, Alton Dean. The establishment of guidelines for use by states in the development of a program of certifying, licensing, or registering the recreation executive. Ed. D. in Recreation, 1971. 167 p. (B. W. Gabrielsen)

A survey was conducted by use of the questionnaire of present practices of certification employed by all states. This was followed with a questionnaire to selected authorities in the field of REC, who were asked to give their professional feelings on certain questions of certification, qualifications, and other variables involved in a program of certification. Research was also conducted into the practices of other professional relating to certification or licensing practices. From the data obtained, guidelines for use by states were developed in the following areas: Certificiation versus licensing, which agency should certify, educational requirements, experience, grandfather clause, fees, membership in professional organizations--mandatory or permissive, revocation, reciprocal agreement, examinations, state and federal funds, and branches to be certified.

184. RAY, Robert Glenn. Relationship between ocular muscle balance and motor fitness in man. Ed. D. in Physical Education, 1971. 115 p. (M. F. Vincent)

Pre- and post-test scores were obtained in a control group (N=23) enrolled in beginning archery and an exp. group (N=79) enrolled in conditioning and weight training classes. The Indiana Motor Fitness Index I was used to measure motor fitness and the Maddox Rod to obtain ocular muscle balance measures. Ocular muscle balance deviance values were significantly related to motor fitness, but the relationship was not sufficiently high for use as an accurate index to motor fitness. Orthophoric subjects had higher motor fitness mean scores than exophoric and esophoric subjects. Motor fitness scores improved as a result of the training program for the exp. group, with this improvement being accompanied by an improvement in both exophoric and esophoric lateral deviation, but vertical ocular muscle balance seemed to have little susceptibility to change during the treatment period.

185. SELLERS, James Ray. The contributions of Harold D. Meyer to the recreation profession. Ed. D. in Recreation, 1971. 376 p. (B. W. Gabrielsen)

Data for the study were obtained mostly from primary sources. The first part deals with the development of the man from his youth through his education and early professional life. His contribution to the REC profession is presented in the following order: his REC philosophy, his career as an educator, the various publications and other contributions to the literature in the field of REC, the man as a speaker, the contribution to professional organizations in REC, his contribution as a consultant to states, communities, and other groups. Finally, an evaluation by 100 of his peers and contemporaries is presented.

186. SHOCKLEY, Joe Melvin. An analysis of performance of the swimmer in the 1971 NCAA University Division Championships, with a description of personal variables and training methods. Ed. D. in Physical Education, 1971. 225 p. (B. W. Gabrielsen)

Questionnaires and official records were used in collecting data. A product-moment correlation coefficient was used to determine relationships between all personal and training variables and preliminary times in every event. The findings supported the following conclusions. Participation in the NCAA Championships is dominated by fresh. and soph.; participants were of average ht. and wt.; one-half the participants swim slower in the preliminary heats than their official seeded time; most of the 12 finalists swim faster than their seeded time; most champions swim faster in the finals than in seeded and preliminary times; conditioning and tapering practices and warm-up procedures varied among participants with equal success.

University of Idaho, Moscow, Idaho (G. H. Porter)

187. BARBER, James T. Stress adaptation through prolonged strenuous training. M. S. in Physical Education, 1971. 35 p. (G. H. Porter)

A random group of 7 Ss and an exp. group of 7 varsity athletes, 4 distance runners and 3 swimmers, participated. Each S was administered an equalized stressor consisting of running at his max. $\dot{V}O_2$ for 6 min. at 0 grade on a motor driven treadmill. Eosinophil counts were used as the index of stress. The degree of stress adaptation was determined by subtracting a control eosinophil response from the stress response. The Mann-Whitney U Test indicated that the exp. group adapted to the equalized stressor significantly better than the random group ($p<.05$).

188. MARTIN, Beverly J. The reliability and validity of the twelve-minute run-walk test for high school girls. M. S. in Physical Education, 1971. 39 p. (G. H. Porter)

Ninety-three SHS girls completed 3 trials of the 12 min. run-walk test. Thirty Ss selected by means of a table of random numbers participated in bicycle ergometer max $\dot{V}O_2$ testing. The following test-retest reliability coefficients were found for the 12 min. run-walk: trial 1 with trial 2 = .72; trial 1 with trial 3 = .72; trial 2 with trial 3 = .76. ANOVA revealed a significant trial-to-trial difference, with mean scores being 1.13, 1.13, and 1.09 mi. for respective trials. Consistency coefficients calculated from ANOVA were .80 for the mean of 3 trials and .73 for pairs of trials. The r between best performance on the 12 min. run-walk and max. $\dot{V}O_2$ was .63.

189. MOWER, Dale W. Cardiac response and caloric costs of playing paddleball. M. S. in Physical Education, 1971. 41 p. (G. H. Porter)

Six Ss, 3 highly skilled and 3 semiskilled, were tested in singles round robin competition 5 times each. HR was monitored via a Parks EKG radio telemetry system. The estimations of caloric costs were made from gas samples collected and metered through a Kofranyi-Michaelis meter strapped to the S. Mean HRs recorded during competition ranged from 147 to 181 bpm. The caloric expenditure ranged from 597 to 1029 Kcal per hr. It was demonstrated that the HR and caloric cost of a player were affected by his own ability and that of his opponent; they were greatest when one played an opponent of equal or superior ability and significantly less ($p<.05$) when playing an opponent of lesser ability.

University of Illinois, Urbana-Champaign, Illinois (A. W. Hubbard)

190. ABERNATHY, Thomas David. An analysis of master's and doctoral studies related to the history of physical education completed in the United States between 1930 and 1967. M. S. in Physical Education, 1970. 109 p. (E. F. Zeigler)

191. ADAMS, Jeanne Loretta. A program of social growth through leisure education for emotionally ill adults. M. S. in Recreation, 1971. 51 p. (D. W. Bishop)

192. ADELMAN, Melvin L. An assessment of sports history theses in the United States, 1931-1967. M. S. in Physical Education, 1970. 230 p. (E. F. Zeigler)

193. ASHMAN, Sandra Fry. Measurement of attitudes toward physical education and interests in physical education of sophomore and senior girls in a selected senior high school. M. S. in Physical Education, 1970. 96 p. (E. L. Schurr)

194. AUKERMAN, Robert. Water quality criteria for selected recreational uses--site comparison. Ph. D. in Recreation, 1971. 326 p. (D. W. Bishop)

195. AXELSON, Betty. The effects of family constellation characteristics and socio-economic status upon women's participation in sports and recreational activities. M. S. in Recreation, 1970. 44 p. (D. M. Landers)

196. BANNON, Joseph J. The evaluation of the roving recreation leader training guide--an inservice training source for inner city youth service personnel. Ph. D. in Recreation, 1971. 119 p. (A. V. Sapora)

197. BEASTALL, Theodore Wesley. Subjective decisions concerning pain and fatigue during maximal performance. M. S. in Physical Education, 1971. 34 p. (A. W. Hubbard)

198. BECKLUND, Larry Wilford. Respiratory knowledge test for the intermediate grades. M. S. in Health Education, 1970. 107 p. (D. B. Stone)

199. BOLE, Ronald Edward. An economic analysis of the factors influencing football attendance at the University of Illinois, 1926-1968. Ph. D. in Physical Education, 1970. 127 p. (E. F. Zeigler)

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204. BROOM, Eric Frederick. A comparative analysis of the central administrative agencies of amateur sport and physical education in England and Canada. Ph. D. in Physical Education, 1971. 286 p. (E. F. Zeigler)

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286. SHULTZ, Kenneth Lowell. Bibliography of sports: A classified list of all sports and sports related books written in English and published in 1966. M. S. in Physical Education, 1971. 76 p. (A. C. Moore and K. J. McCristal)

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295. TOOSHI, Ali. Effect of three different durations of endurance training on serum cholesterol, body composition, and other fitness measures. Ph. D. in Physical Education, 1970. 95 p. (T. K. Cureton, Jr.)

296. VAN HOFF, Johannes Jay. A synthesis and analysis of the minutes of the meetings of the Intercollegiate Conference of Faculty Representatives (Big Ten) Intramural Directors from 1922-1968. M. S. in Physical Education, 1970. 164 p. (D. O. Matthews)

297. WADE, Michael George. Biorhythms in children during free play. Ph. D. in Physical Education, 1970. 86 p. (A. W. Hubbard)

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300. WILLIAMS, Ian David. The effects of practice trials and prior learning on motor memory. Ph. D. in Physical Education, 1970. 75 p. (A. W. Hubbard)

301. WINDSOR, Richard Anthony. A survey of the smoking habits, attitudes, and beliefs of 4-H youth, ages 9 to 12, in Illinois. M. S. in Health Education, 1970. 85 p. (D. B. Stone and L. O'Reilly)

302. WITT, Peter A. Dosage effect of menthylphenidate on the activity level of hyperactive children. Ph. D. in Recreation, 1971. 104 p. (M. J. Ellis)

303. WOOD, Shirley Jean. Reciprocal role expectations of women physical education teachers and chairmen. Ph. D. in Physical Education, 1971. 171 p. (E. F. Zeigler)

304. YEAGER, Beatrice Virginia. An analysis of interpersonal communication patterns utilized by a selected small group. Ph. D. in Physical Education, 1971. 238 p. (E. F. Zeigler)

Illinois State University, Normal, Illinois (R. D. Liverman)

305. DARNALL, David D. Trends in administrative policies of the Mid-State Conference, 1948-1970. M. S. in Physical Education, 1971. 110 p. (R. W. Koehler)

This study was concerned with administrative policies of the Mid-State Conference from its beginning in 1948 through 1970. The study related to conference membership and officers and conference honors--specifically the sportsmanship award, the selection of all-star teams in football and basketball, and the conference championships. An examination of conference records and minutes revealed these policies as administered within the conference as it has functioned and is now functioning. Other sources of information were interviews with present superintendents, principals, and athletic directors of schools who have been associated with Mid-State Conference; interviews with sports personnel of the Bloomington Daily Pantagraph; and records available from the Bloomington Daily Pantagraph.

Indiana University, Bloomington, Indiana (J. M. Cooper)

306. ADCOCK, Anthony Green. An instrument for the evaluation of the healthful school environment in elementary schools. H. S. D., 1971. 137 p. (J. K. Rash)

Standards appropriate for evaluating the healthful school environment were rated and weighted by authorities in the school health field. The instrument was administered at 12 ele. school environments by an outside evaluator, a self-evaluator, and the investigator. Reliability coefficients above .80 were calculated for the total scores and 5 of the 10 areas in the instrument. More reliable scores were obtained for areas relating to facilities than were obtained for areas primarily concerned with organization and practice. The instrument can be used as a guide for determining optimum attainment in the healthful school environment. The instrument is also suitable for use in a practical school situation when used by trained personnel.

307. AKIN, Ronald Krentz. The development of an equation to determine the proportion of state motor fuel taxes contributed by recreational boaters. Re. D., 1971. 124 p. (R. Tully)

Rationale of this study was to provide factual information to stimulate legislation to divert fuel monies contributed by recreational boaters to agencies responsible for the provision of services for these recreational boaters. A random sample (N=6,970) of individual registered boaters in the state of Wis. was selected for respondents to a questionnaire survey to determine the dependent variable, the amount of state fuel taxes contributed by boaters in 72 counties. A 9-member jury selected 5 independent variable factors related to recreational boating fuel consumption. Correlation, multiple r, and multiple regression procedures were used to develop the results.

The equation that resulted from the study was:

(-39641.09) + .617 (Accessible boating water acreage) + 25.108 (per capita income) + 2.463 (second homes) + .033 (total population) = Estimated amount of state fuel taxes contributed by individual registered boaters.

and:

$$\left(\frac{\text{Estimated amount of state fuel taxes contributed by individual registered boaters}}{.07}\right) \text{State tax on each gallon of gasoline} = \text{Estimated amount of state fuel taxes contributed by individual registered boaters}$$

Total State Fuel Taxes Collected

308. ANSPAUGH, David James. Leader characteristics of basketball players as perceived by team members, and as measured by selected evaluative instruments. P. E. D., 1971. 251 p. (J. M. Cooper)

Ss (N=163) male varsity basketball players from 14 institutions of higher learning in Ind. and Mich. were investigated to ascertain the characteristics of leadership present in the basketball setting and to provide insight into the differences exhibited by members of winning and losing teams. Descriptive analysis was used to analyze the responses to a sociometric questionnaire, the Assumed Similarity between Opposites Test, and the Group Atmosphere Test. The BMDO7M stepwise multiple discriminant regression analysis was applied to the Cattell 16 PF test profiles of the selected leaders and nonleaders. The .05 level of significance was used for both the X^2 test and the multiple discriminant analysis. It was found that leaders differed from nonleaders in certain personality factors and that basketball ability and popularity were factors in the team's selection of a leader.

309. ARNOLD, Donald Eugene. Legal basis for physical education in selected states. P. E. D., 1971. 293 p. (J. B. Daugherty)

State statutes of 6 states and court records throughout the U. S. dealing with the activities and practices of physical educators were analyzed. Precautions teachers are expected to take to avoid injuries are: proper instruction, logical teaching progression, no participation in activities beyond the prowess of students, warning of high risk of injury, proper equipment, reasonable means of classifying students for competition. The courts expect nothing more than the education profession expects. The courts have consistently placed a high value upon the worth of PE programs and in many instances included the interscholastic athletic phase of the program in their blessing.

310. BOWEN, Robert Orville. The effect of informal dissemination of health information about the common cold. H. S. D., 1971. 123 p. (D. J. Ludwig)

The effect of information dissemination by means of an automatic delivery system on visitation patterns to the Student Health Service at I. U.

was studied. Ss were resident hall populations at I. U. Experimental treatment was the presentation of a film on self-care practices for the common cold. Data based on visits to the Student Health Service for upper respiratory infections were collected from experimental, control, and base line populations. X^2 was used. It was determined that health information could be effectively disseminated in an informal context. While the general university population experienced a 27% increase in U. R. I. visits, the experimental population decreased visitation. Eighty-six % of the exposed population expressed approval of this method of information dissemination.

311. BOX, Colin Elmer. Drug education in Ontario, Canada, secondary public schools. H. S. D., 1971. 226 p. (D. J. Ludwig)
The investigation was conducted to determine the extent to which education concerning drug abuse was studied in Ontario, Canada, public schools. Phase I was to obtain information regarding drug instructional programs. Mailed questionnaires were completed by administrators of participating schools (N=210) relating to policies, practices, and procedures governing the instructional program. Phase II was to obtain information relative to teenage attitudes and practices toward drug abuse. Public School Adms. (N=27) administered the inventory to 1, 035 students. Responses were analyzed by sex and grade. It was found that a majority of the schools participating provide drug instruction as a part of the total school program; there is a lack of teaching materials and professional preparation; behavioral aspects rather than biological should be stressed; non-medical use of drugs is increasing among students in Ontario public sec. schools; school size has little effect; students possess varying drug attitudes and practices.

312. BRISTOR, James Lloyd. An analysis of the attitudes of resident camp administrators regarding critical problems in resident camping. Re. D., 1971. 234 p. (T. R. Deppe)
An ordered list of critical problems found in resident camping was compiled. Attitude statements were then devised and evaluated. A 20% random sample was drawn from the American Camping Association membership. This sample involved 421 administrators from agency, church, public, private, and other types of camps. A survey instrument which contained an attitude scale, a progress implementation scale, and an open-ended questionnaire was used. The data were analyzed using a M rating scale, the X^2 goodness of fit test, and X^2 test of independence, and frequency of mention. It was found that the background classifications of the administrators influenced their attitudes. It is recommended that resident camping opportunities should be provided for larger numbers of children who are unable to afford this experience. Also, the American Camping Association should improve its research program information services for its members.

313. BROWN, Paul Timoth[illegible]. Effects of three intensity levels of warm-up on the reaction time and speed of movement in the baseball swing. P. E. D., 1971. 124 p. (J. M. Cooper)
Members of the I. U. baseball team (N=30) were Ss to determine the effects of 3 intensity levels of warm-up on the $R\bar{T}$ and MT in the baseball swing. Three treatments of no warm-up, regular warm-up, and overload warm-up were used. Warm-up significantly improved speed of movement, but appeared to have no effect on RT or MT; no difference existed between the use of regular and overload warm-up as they are related to MT; warm-up is of benefit to a performer in increasing MT; RT and MT are independent of each other. Ten trials were given for each treatment and the M of these trials was used as the criterion score. The treatment X Ss' design was used to investigate the effect of the 3 intensity levels. It

was found that RT and MT are independent of each other in the baseball swing.

314. BUNCH, Richard Addison. An evaluation of selected internship programs sponsored by the National Recreation and Park Association. Re.D., 1971. 209 p. (T. R. Deppe)

Participants in the REC internship program in 4 cities (Philadelphia, Pa., Oak Park, Ill., Milwaukee, Wis., and Baltimore, Md.) between 1956 and 1969 were administered a questionnaire to evaluate the internship experience and its relationship to the intern's professional career. Interviews with the internship supervisor in each of the 4 cities were held to determine the procedures used in conducting the internship program. Educators in the institutions from which the interns graduated were administered a questionnaire to identify their attitudes toward the program. It was found that 60% were introduced to the field of REC through college and university personnel; 86% of the professional positions now held by interns were administrative or supervisory, approximately 70% continued in the REC profession; each sponsoring agency acted independently in establishing procedures; 60% of the park and REC educators considered communications fair tc poor between N. R. P. A. and students and faculty.

315. HARVEY, Dexter. The effects of level of aspiration and team competition as motivational techniques upon children's performances on selected sports skill tests. P. E. D., 1971. 234 p. (G. F. Cousins)

Experiments with a boys' group (N=91) and one with a girls' group (N=91) were conducted. Ss (4th and 5th graders) were randomly assigned to 1 of 4 motivational techniques. They received 3 trials on each of 4 sports skills tests under the control condition for an initial test. Two days after the initial test, Ss received 3 trials on each sports skill test under the treatment condition for the final test. ANCOVA was used to evaluate the final adjusted treatment Ms. ANOVA was used to evaluate the 3 trial Ms under each motivational technique. Differences were found among motivational techniques on 3 of the 4 sports skill te ts.

316. HENSCHEN, Keith Page. The effects of a small basket upon basketball shooting accuracy with the nondominant hand. P. E. D., 1971. 136 p. (J. B. Daughterty)

Sixth, 7th, and 8th grade boys and girls were utilized as Ss (N=120) in 4 prs. of matched groups based upon sex and performance scores obtained from a criterion measure in order to determine the effects of a small basket (16 in. inside diameter) upon basketball shooting accuracy with the nondominant hand. Analysis revealed that boys and girls practicing at the small basket improved significantly more in shooting accuracy than those who practiced at the regulation basket. The small basket training device appears to be more of a beneficial aid for developing lay-up shooting accuracy with the nondominant hand for JHS boys and girls than does practice at a regulation basket.

317. HOHMAN, Howard Rolf. An analysis of administrative policies of intercollegiate athletics in the Rocky Mountain states. P. E. D., 1971. 183 p. (A. T. Slater-Hammel)

A study was done to compare the present administrative status of intercollegiate athletics in relation to the opinion of university and college presidents as to how intercollegiate athletics should be administered in the Rocky Mountain colleges and universities. The presidents responded to a questionnaire giving their own philosophies on this subject and the athletic directors responded to a checklist stating the actual policies and procedures followed in their respective institutions. It was determined

that prospective student-athletes would have to compete with other students in the classroom; more study is needed on the national letter-of-intent; athletic recruitment is one of the weakest and most controversial areas; practical and equitable methods of enforcing policies concerning off-campus jobs are unlikely; coaches' duties should be more flexible; thought should be given to the no. of contests in which a team may engage during a season and the max. no. of school days missed; private colleges have more fiscal problems than do public ones in supporting intercollegiate athletics.

318. HOLLAND, John C. Heart rates of Indiana high school basketball officials as measured by electrocardiographic radio telemetry. P. E. D., 1971. 184 p. (J. B. Daugherty)

An investigation of the physiological demands of HS basketball officiating and the work capacity of the men engaged in this avocation to withstand these demands was made. HRs of volunteer basketball officials (N=12) were continuously monitored via radio telemetry during a regular season basketball game and repeated measures on 5 Ss were obtained during the Ind. State HS basketball tournament. Laboratory exp. conducted on the Ss were: body density using hydrostatic densiometry, standard walk of 3.5 mph at 9% grade for 10 min., modified Balke Treadmill Test for aerobic capacity, and residual volume using the open circuit N_2 wash-out technique. The overall M HR recorded during regular season games was 155 for 11 physically unfit officials and 101 for 1 physically fit man. HR of basketball officials can be objectively measured by radio telemetry during official athletic contests without inhibiting their performances.

319. KRAFT, George Charles, Jr. The construction and standardization of a wrestling knowledge test for college men majoring in physical education. P. E. D., 1971. 174 p. (J. B. Daugherty)

A table of specifications covering wrestling was established. The weights assigned to each area of the table were determined by the % assigned each area by 71 wrestling instructors in colleges and universities and by the no. of pages allotted to each area in 5 of the leading textbooks on wrestling. Two pre-tryout tests of 75 questions each were administered. Based upon the results, 2 try-out tests of 50 items each were administered to 723 PE majors completing a course of instruction in wrestling at 21 institutions throughout the U. S. The final test of 50 direct question, multiple choice items was administered to students from the various institutions with 339 answer sheets being received from 13 institutions. The evidence indicated that the final test is a valid and reliable instrument for measuring the knowledge and understanding of college PE majors completing a course of instruction in wrestling.

320. LOWING, Lawrence F., Jr. Expressed needs and interests as a basis of sex education for ninth grade students. H. S. D., 1971. 324 p. (D. J. Ludwig)

This study was conducted within the Monroe Co. Comm. School Corp., Ind. Five adaptations of a sex educ. inventory consisting of 117 concepts, 27 subtopics, and 8 topics were prepared so that respondents could express what is needed by, and/or interesting to, 9th graders in a sex educ. unit of a sem. health educ. course. Mother and fathers (N=25) were interviewed to better understand the responses from parents inventoried by mail. Clergy and physicians responded by mail. Students were inventoried in groups and the remainder of school respondents were inventoried individually. The findings revealed that there is a similarity between expressed needs and interests; girls feel a higher need and interest than boys to learn sex educ. topics in school; venereal disease is the topic most needed; dating is the least needed; counselors are the most positive group about the teaching of sex educ. in school, while

students are the most negative; parents are in greatest agreement. Ninth graders feel stronger about including the topics social sexual issues and feelings in a sex educ. unit than do adults; adults feel stronger about including adolescent problems, preparation for marriage, and personal behavior.

321. McCORMICK, James Hume. The relationship between position sense and beginning diving ability. P. E. D., 1971. 122 p. (J. Counsilman)

The ability of individuals to perceive the position of their bodies while being rotated on a wheel through 360° of a vertical plane under various conditions was measured. The accuracy with which they could determine their location was then related to the skill they achieved in diving. Motor skills resulting from a diving course were analyzed to determine if learning had any effect on the space perception measurements. A comparison of videotape and overlays with traditional judging methods of evaluating were used. Equipment used for measuring space perception was a wheel 7 ft. in diameter with a 1/2 hp. motor which rotated Ss 360° every 10 sec. Students activated a light when they recognized 12 o'clock vertical and 6 o'clock inverted positions. It was found that body position sense is a complex characteristic of motor skills which can be analyzed. The videotape method of evaluation was found to be effective in judging beginning dives.

322. METCALF, Robert Lee. Transfer of training effect of basketball shooting practice of free throw shooting accuracy. P. E. D., 1971. 150 p. (G. F. Cousins)

Methods of practice used for this study were the jump shot, and the one-handed shot, from 10, 15, and 20 ft. Styles of free throw shooting were the underhand, jump, and one-handed shots. On the basis of pretests, 64 SHS boys were blocked and randomly assigned to 6 exp. groups and a control group. Field goal shooting practice for 19 days followed under 6 sets of exp. conditions. At the conclusion, a posttest of the 3 styles of free throw shooting was administered. ANCOVA indicated that the most positive transfer occurred when method and distance of field goal shooting and style of free throw shooting were the same.

323. MIDTLYING, Joanna. Stress responses of women in advanced hunt horsemanship at Indiana University. P. E. D., 1971. 211 p. (A. Aldrich)

Students enrolled in advanced horsemanship classes at I. U. (N=9) were used to determine the effects of the stress of horse jumping on psychomotor and cognitive functioning, self-reported fear and enthusiasm, and rated skill performance. Test measures were taken at the middle and end of the sem. under the 2 stress conditions of skill practicing and skill testing when Ss executed jump obstacles in a series of hunt courses. ANCOVA was used to analyze test scores in a 3 factor design (2 x 2 x 2) measured under 8 treatment conditions. Pearson r was used to determine pertinent relationships between performance measures. It was determined that psychomotor functioning, cognitive functioning, reported fear, and reported enthusiasm do not seem to be affected by different hunt courses or stress conditions in horse jumping. Reported fear appears to be higher in prejump periods than postjump periods regardless of hunt course or of stress condition.

324. SARUBBI, Kenneth. The effectiveness of two methods of practice and three different size rims on the improvement of basketball shooting. P. E. D., 1971. 103 p. (K. W. Bookwalter)

The effectiveness of shooting at smaller than normal size baskets on 60 Ss was studied using a mental practice-physical practice approach with 10 blocks for the randomized block design. ANOVA was completed by

factorial analysis for the randomized block design (Alpha=.05). There were no significant differences between the 2 groups using different methods of practice among the 3 different sized rim groups. There were no significant interaction effects. The improvement curves demonstrated 3 distinct trends.

325. SCOTT, Robert Sparling. Acquisition, retention and relearning of a gross motor skill with normal and retarded children. P. E. D., 1971. 112 p. (A. Aldrich)
Comparisons were made in ability to learn the gross motor skill of balancing on a stabilometer and to determine the effects of 50% additional learning on retention and relearning of the skill after a 28-day period of no practice. All calculations were made using the M score for each child (N=36) for each block of 4 trials and the groups were compared in acquisition, retention, and relearning. All Ss improved at a similar rate during the learning blocks, with the retarded children significantly lower in performance. There was no difference noted in ability to retain the skill after 28 days of no practice. Normal children performed at a higher level and learned at a faster rate during the relearning blocks. The relationship between performance on the stabilometer and IQ was higher for the retarded. The distribution of performances of the retarded children fell within the range of performances of the normal children.

326. SHONDELL, Donald S. The relationship of selected motor performance and anthropometric traits to successful volleyball performance. P. E. D., 1971. 152 p. (G. F. Cousins)
Twenty-three tests and measurements were administered to 93 college students. Multiple r techniques were employed and regression coefficients determined. A two-phase cross-validation procedure determined the test battery used to predict volleyball potential using 45 Ss. Phase 2 of the cross-validation utilized 2 divergent groups to determine whether the test battery discriminated between highly skilled and beginning players. The 4-item battery consisting of the medicine ball toss, 30-yd. dash, zig-zag run, and the wall catch was found to be a valid and reliable test battery. The 6-item battery consisting of medicine ball toss, 30-yd. dash, zig-zag run, wall catch, vertical jump, and wt. was also a reliable battery for predicting volleyball potential of college men at Ball State Univ.

327. SMYTH, John Phillip. A descriptive catalog of rules modifications in competitive intramural activities. P. E. D., 1971. 173 p. (J. B. Daugherty)
Rules modifications found in intramural activities in a sample of 189 institutional members of the National Intramural Association were compiled and collated. The findings were reported, discussed, and summarized for each activity (N=85). The descriptive-analytical method of research was employed. Many unique activity variations and common trends were found and reported. The study was designed to assist in the establishment or revision of curricula in collegiate intramural programs. Institutional size and geographic locations had little perceptible influence on the nature of rules modifications. Common and unique variations were reported for each of the activities.

328. STEWART, William. The relationship between the athletic success of the varsity football teams of the Big Ten and the academic success of the members of the teams from 1965-1966 through 1968-1969. P. E. D., 1971. 112 p. (J. B. Daugherty)
Student-athletes (N=1,430) selected from the eligibility lists of the football teams of the Big 10 from 1965-1968 were Ss. Determined were rs between athletic success and the different areas of academic success.

The athletic success of the football teams correlated highest with the M GPA of 3 yr. letter winners, the % of student-athletes who earned their degrees in 4 yrs., and the team availability factor. The continued availability of a tendered student-athlete was significant to the athletic success of the team; therefore, a successful counseling program for the student-athlete was seen as being directly related to the athletic success of the team.

329. WARD, Robert Darryl. An investigation into the use of computer integration of kinematics, kinetics, and cinematography data in motion analysis. P. E. D., 1971. 159 p. (J. M. Cooper)

The use of various research tools in collecting and analyzing kinematic and kinetic data in a total human body movement was explored. The high jump take-off was the medium through which the capabilities of the tools were tested. Two I. U. high jumpers served as Ss. The procedures involved a collection of anthropometric data, use of cinematography, use of a force platform and other electronic equipment, and computer programming. The film-tracing data were key punched and analyzed by Motion A and Monster, 2 computer programs. Data from the force platform recordings were measured by using a polar planimeter, and impulse data were then determined. Further mathematical procedures were used to calculate velocities and maximum predicted heights of the center of gravity. It was determined that the visicorder, oscilloscope, and integrator reduced error that would otherwise accrue with the use of mechanically designed recorders. A timing generator proved to be an effective universal timing system. Monster data produced a good relative look at the action taking place during the take-off, but its output was dependent upon precise cinematographic reduction of error and proper polynomial fitting.

330. WEITZ, Gary Albert. The effects of breathing oxygen while performing aerobic work in recovery following a run to exhaustion. P. E. D., 1971. 84 p. (L. G. Myhre)

Six cross-country runners participated in 4 exp. on a motor-driven treadmill. Ss ran to exhaustion and then performed aerobic work in recovery breathing O_2 or ambient air. Blood samples were drawn prior to the run and in recovery (0-1, $4\frac{1}{2}$-$5\frac{1}{2}$, $9\frac{1}{2}$-$10\frac{1}{2}$, $19\frac{1}{2}$-$20\frac{1}{2}$ and 35-36 mins.), and analyzed for lactic acid concentration. During recovery, HR, respiration rate, $\dot{V}_E$, rectal temp. and lactic acid changes were observed. The breathing of O_2 during a working recovery had no effect on the removal of lactic acid from the blood. HR was approx. 10 bpm lower throughout the recovery period when O_2 was breathed as compared to ambient air. The breathing of O_2 in a working recovery situation following a run to exhaustion had no effect on respiration rate; $\dot{V}_E$ was affected only during the first 5 min. of working, and recovery following exhaustion occurred more rapidly when Ss were breathing O_2.

331. WERNER, Peter H. Effects of the integration of physical education with selected science concepts upon science knowledge and selected physical performance skills of boys and girls at the fourth, fifth and sixth grade levels. P. E. D., 1971. 258 p. (A. Aldrich)

Initial tests were administered to 180 Ss enrolled in grades 4, 5 and 6. The Ss then took part in a 7-wk. learning program involving the teaching of 4 selected science concepts in the classroom and in PE. The science concepts were levers, Newton's First Law of Motion, Newton's Third Law of Motion, and work. After a period of 7 wks., all Ss were given a final test on the 9 dependent variables. The data were analyzed by means of ANCOVA. The use of the exp. treatment was more effective as a method of increasing performance than use of the control treatment and children in the 6th grade and in selected instances in the 5th grade performed significantly better than the children in the 4th grade.

332. WINDELL, Edith Jane. Evaluation of gait patterns of trainable mentally retarded children. P. E. D., 1971. 165 p. (E. A. Davies)

Selected muscles were examined electromyographically while simultaneously measuring the time relation between the stance and swing phases of the lower extremity. The characteristically shaped deflections recorded from the walking force transducer were quantitatively analyzed to establish a pattern for the time relationship of the foot during various walking phases. Duration of the electrical activity for each of 3 muscles was analyzed quantitatively during the stance and swing phases as well as the duration of the electrical activity for the total gait cycle. Ten consecutive steps were analyzed for each subject and the M % was computed for the comparison of the gaits from the following groups: normal and TMR, normal boys and TMR boys, normal girls and TMR girls, sex within the TMR, chronological age within the TMR, and chronological age for the normal and TMR. The TMR showed a gait pattern that was consistently different from that of normal subjects. Age was a factor with younger TMR. Sex did not influence the gait pattern of the TMR.

333. YOUNGBERG, Richard S. A comparative analysis of the qualifications suggested for intercollegiate athletic directors. P. E. D., 1971. 173 p. (G. F. Cousins)

Athletic directors, faculty representatives, and coaches at 943 NAIA and/or NCAA member institutions were surveyed using a questionnaire. Ss were asked to rate each of 53 characteristics as to its essentiality on a scale from 1 to 7. Comparisons were made between the average ratings assigned each trait by each of the 3 groups. Ratings associated with 16 control variables were also studied for each trait. Twenty-nine of 53 objectively measured characteristics were deemed essential for the administration of an intercollegiate athletic program. There was agreement concerning the worth of each characteristic measured. Ratings assigned a trait were seldom influenced by a person's association with 1 or more of the control variables. Most important objectively measured characteristics identified were having a master's degree and having coached at the college level.

334. ZUIDEMA, Marvin A. An analysis of the influence of various measurement factors upon the reliability and efficacy of selected physical efficiency tests. P. E. D., 1971. 233 p. (G. F. Cousins)

Examination of the influence of certain measurement factors on the reliability and efficacy of selected tests of physical efficiency was investigated. Four factors examined for purposes of this study were: selection of criterion score, option of scoring precision, choice of statistical procedure for estimating reliability, and use of partner scoring. Samples of college and ele. Ss were given multi-trials on the standing broad jump, shuttle run, and 50-yd. dash tests on 2 occasions. Performance scores for 107 Ss were assessed by 3 raters: a randomly assigned classmate-partner, a physical educator, and a PE major student assistant. It was found that the effectuation of high measurement reliability is a multi-dimensional problem.

University of Iowa, Iowa City, Iowa (L. E. Smith and M. G. Scott)

335. ASHCRAFT, Rita J. Professional characteristics of physical education teachers in four year public colleges and universities. Ph. D. in Physical Education, 1972. 243 p. (M. G. Scott)

Physical educators (N=1,221) employed in 131 colleges and universities participated in the questionnaire survey. Some findings of the study were: more differences existed between PE faculty members differentiated by their sex than by the type of institution in which they taught; greater differences existed between physical educators differentiated by sex than by the administrative structure of the department in which they taught; physical educators who taught in universities generally enjoyed better employment conditions and higher salaries than those who taught in colleges; men physical educators usually had better employment conditions and higher salaries than did women teachers; greater relationship existed between faculty members who taught in universities and departmental administrative structure than between college faculties and departmental administrative framework; reorganization of the departmental administrative structure resulted in few changes in the load and level of classes taught by physical educators; and women faculty members who had a female department chairman generally had better employment conditions than women who had a male department chairman.

336. BATEMAN, Nancy J. Dynamogenic effects on endurance of muscular contraction of bilateral, ipsilateral and contralateral limbs. Ph. D. in Physical Education, 1971. 81 p. (N. P. Burke)

This study investigated the effects of cocontraction of knee and elbow extensors upon the relative isometric endurance of elbow extensors. Different effects among levels of muscular endurance were also examined. Ss were 32 randomly selected women undergraduate PE majors. Latin square ANOVA was used to counterbalance treatments and order. The following conclusions were made: relative isometric endurance for arm extensors, regardless of initial level of this endurance, is inhibited by simultaneous contractions of the extensors of the bilateral, contralateral and ipsilateral limbs; relative isometric endurance is less inhibited with simultaneous bilateral and contralateral contractions than with ipsilateral contraction; there is an inverse relationship between max. strength and isometric endurance of the elbow extensors when the endurance measure requires a contraction strength of at least 75% of max.

337. BROWN, Beverly M. The effects of a movement fundamentals course on college women of low motor ability. M. A. in Physical Education, 1971. 68 p. (J. L. Scahill)

A course in movement fundamentals was developed to improve the basic skills and understanding of movement in college women of low motor ability. College women, not majoring or minoring in PE, who ranked in the lower one-third on the Scott Motor Ability Test Battery, completed the movement fundamentals course and improved significantly between pre- and post-tests. The control group of low motor ability Ss enrolled in badminton, basketball, and swimming also improved significantly. There was no significant difference between the M gains of the exp. and control groups.

338. BUSHMAN, Eva M. Short-term effects of smoking on simple reaction time. M. A. in Physical Education, 1971. 87 p. (N. P. Burke)

Graduate and undergraduate women (N=225) completed a questionnaire about their smoking habits. Nearly half indicated they had never smoked, while only one-tenth were heavy smokers (1-1½ packs per day). Over a period of 1 hr., 6 tests of RT of the lower leg and the lower arm were given to both heavy smokers (N=15) and nonsmokers (N=15). Heavy smokers smoked 1 cigarette between the first and second tests. ANOVA found no significant differences that could be attributed to the effects of smoking 1 cigarette.

339. CALLAHAN, Patricia M. A concept of dance. M. A. in Physical Education, 1971. 38 p. (M. G. Fox)
The Dance Concert included 3 creative compositions which ranged in duration from 8 to 20 min. The dances varied not only in length but also in structure. "Voice of the River" was lyrical and serene, in direct contrast to the emotional dramatic quality of "LCCR68-3166." "Voice of the River" made use of a chorus section of 4 couples dancing in unison contrasted by a solo section for the lead dancer. "2 + 2 = 4" was a creative emerging of several art forms: original violin music, poetry readings, and dance. "2 + 2 = 4" made use of 6 chorus members dancing together while a violin player and poetry were contrasted against the group. "LCCR68-3166" was designed to contrast the 2 lead dancers against each other with the chorus members joining the conflict.

340. CLARKE, Judith. Survey of the graduate of professional programs in physical education for women at the University of Iowa. Ph. D. in Physical Education, 1971. 114 p. (M. G. Scott)
A questionnaire was used, with 63 (45%) B. A. or B. S., 46 (53%) M. A. and 51 (70%) Ph. D.'s replying (1960-1970). Most were teaching at the college level, decreasing %s progressing to younger grade levels. The majority are professionally oriented as shown by memberships, convention and clinic attendance, and type of reading. While needs were stated by some, the majority rated undergraduate instruction good to excellent, and graduates listed freedom of thesis topic selection and interaction among students from different areas as assets. They believe they need well rounded programs, help on coaching and on leadership of student programs.

341. CROOM, Annie Pearl. A comparison of the effects of two methods of teaching movement fundamentals upon general motor ability. M. A. in Physical Education, 1971. 119 p. (J. L. Scahill)
College freshman women (N=100) in 4 nonmajor skills classes were divided into 2 groups. A method instruction, traditional or movement exploration, was randomly assigned and after 32 sessions, over 8 wks., the Scott Motor Ability Test was administered for the second time. As there was a significant difference between the posttest composite Ms of the 2 groups, the author concluded that the traditional method was more effective in improving general motor ability for college freshman women.

342. FISHER, Donna Clare. The relationship of kinesthesis to the hand action in sculling. M. A. in Physical Education, 1971. 38 p. (M. G. Fox)
College women of varying swimming abilities were tested using measurements of kinesthesis for hand and arm function and sculling ability tests. The kinesthetic tests included supination, pronation, arm raising to a horizontal position, and the push test. Sculling ability was determined by ratings and a time course. Reliability of the kinesthetic tests (ppm) was determined to be significant ($p<.05$). Spearman rho indicated no relationship ($p<.05$) between measures of kinesthesis and sculling ability. A third set of correlations was analyzed between the rated sculling and the timed sculling. Spearman rho indicated significance ($p<.05$).

343. GNAGY, Susan K. The use of projective techniques for identifying fear in beginning swimmers. M. A. in Physical Education, 1971. 46 p. (M. G. Scott)
High school soph. were tested, using the Sheffield Projective Test and a drawing test, and then individual results were compared to their initial reaction to the water. Neither tool proved statistically significant as a predictor of fear cases.

344. HICKS, Nancy L. An achievement test battery in beginning lacrosse for college women. Ph. D. in Physical Education, 1971. 57 p. (M. G. Fox)
An achievement test battery in beginning lacrosse for college women was constructed, using 45 college women as Ss. Five tests were constructed: the Lacrosse Multi-Skill Test, the Lacrosse Throw for Distance Test, the Wall Rally Test, the Wall Toss Test and the Goal Shooting Test. Norms were provided in the form of T-Scales for the tests and test batteries.

345. KISLER, Geraldine L. The determining laterality factor for differences in performance on a gross motor ability task. M. A. in Physical Education, 1971. 61 p. (N. P. Burke)
College fresh. women (N=120) enrolled in movement principles PE classes were classified as right, left, or mixed laterality on both hand and foot tasks, and as right or left eyed. The Scott Motor Ability test was used as the gross motor ability task. The following conclusions were drawn: as a group the homolaterals out-performed both the mixed and heterolateral groups, while the mixed group out-performed heterolaterals; mixed subjects should not be classified as part of the heterolateral group, as they differ in performance; eye-foot laterality combinations have some influence on performance of the basketball throw; decided foot and hand laterality groups perform better on the broad jump than do mixed laterality groups.

346. MAIORINO, Renata A. The effects of a strength building program on the forehand and backhand drives in tennis. M. A. in Physical Education, 1971. 44 p. (J. Scahill)
An attempt was made to determine if an increase in arm strength of college women students would occur through the use of the Exer-Genie Exerciser and if so, whether the increase in strength would enhance the execution of the forehand and backhand drives of beginning tennis players. The modified Broer and Miller forehand and backhand and the wallboard tests were given to college women (N=34) enrolled in beginning tennis classes. The t indicated that use of the Exer-Genie Exerciser resulted in no significant improvement in strength in the exp. group and the Exer-Genie Exerciser had little or no effect on tennis performance.

347. MILLER, Kathleen Elizabeth. An analysis of a physical fitness test battery in relation to a physiologically based criterion. Ph. D. in Physical Education, 1971. 128 p. (N. P. Burke)
This study investigated whether taking into account a S's ht. and wt. on performance on motor fitness tests would result in a more accurate prediction of fitness as measured by a cardiovascular test, and whether there were any significant differences on motor fitness test performances between ht. divisions or among wt. categories within each ht. division. The conclusions from this study were: taking into account ht. and wt. did not make the motor fitness test battery a better predictor of cardiovascular fitness; ht. had a negative influence on the performance on the grasshopper test and a positive influence on the performance of the standing long jump test; and wt. negatively influenced all test performances regardless of ht. except that of the grasshopper test of Ss 66.5 in. and over.

348. NICHOLS, Beverly Ann. A comparison of two methods of developing the overhand throw for distance in four, five, six, and seven year old children. Ph. D. in Physical Education, 1971. 170 p. (N. P. Burke)
One method utilized a variety of ball throwing activities; the other a teaching device designed by E aimed at patterning the angle of release.

The 3 aspects of throwing investigated included distance thrown, velocity, and angle of release. The 151 Ss were tested after a 6-wk. practice period and again after a 6-wk. period of no practice. No significant differences between treatment groups were observed over the 12-wk. period on any of the 3 measures. Velocity continued to improve over the entire period. Sex differences on the 3 measures were in favor of the boys and performance improved with age for both sexes.

349. PALMER, A. Reaney. The effects of directed and undirected mental practice on the acquisition of a gymnastics skill. M. A. in Physical Education, 1971. 63 p. (M. G. Fox)

A method of mental practice, directed or undirected, was randomly assigned to 2 groups of SHS girls (N=47). After 6 sessions, extended over a period of 3 wks., the Ss attempted to perform for the first time the criterion skill, the ankle spin to the left on the uneven parallel bars. As there was no significant difference between the improvement of the 2 groups, it was concluded that both methods of mental practice were equally effective in skill acquisition.

350. SMILEY, Mary Helen. Flexible scheduling techniques utilized in physical education programs within selected Iowa secondary schools. Ph. D. in Physical Education, 1971. 171 p. (J. L. Scahill)

The organizational patterns of instruction being used in PE programs within selected Iowa secondary schools employing the Stanford School Scheduling System and the effects of flexible-modular scheduling on the PE curricula were described in this investigation. Data were obtained through interviews with the principals, PE instructors, and students in the selected schools. Observations were also made of PE classes, open laboratories, and independent study and resource areas which exhibited the flexibility of the total program. The consensus of opinion among faculty and students interviewed was that flexible-modular scheduling offered increased opportunities for students to progress toward their individual goals through independent study, offered greater advantages for teachers to pursue areas of greatest interest and abilities, and provided a more effective program by increased course offerings.

351. TOLER, Shirley E. The relationship of selected measures of flexibility and kinesthesis to achievement in synchronized swimming. M. A. in Physical Education, 1971. 66 p. (M. G. Fox)

College students (N=34) with no previous synchronized swimming experience were given kinesthesis tests of arm positioning, leg positioning, and orientation in space, adapted to the water by use of a transparent chart of angles suspended over the water and a test of balance and tests of flexibility of the hip and spine. Following a 16-wk. course in beginning synchronized swimming, the students' ability was determined by 3 judges' ratings of skills categorized into movement patterns and body positions. Correlations were made between each test of kinesthesis, flexibility, movement pattern, body position and total scores. A low but positive r was found on most of the comparisons of skill patterns and positions with measures of kinesthesis and measures of flexibility not, however, significant enough to be of predictive value.

352. VONDERAU, Kathryn E. Determination of stable physical performance scores and estimated reliability for selected skill tests. Ph. D. in Physical Education, 1972. 170 p. (M. G. Scott)

Repeated trials on 13 skill tests were administered to undergraduates. Data were submitted to ANOVA to determine if significant trend was present in the means of repeated trials, and if so, the Dunnett Multiple

Comparison Procedure was applied. Significantly different trials were excluded from the data and reliability estimates were computed by applying the intraclass correlation method. Conclusions included a recommended no. of practice trials for each test, and estimated reliability coefficients for the statistically stable repeated trial means.

353. WARREN, Margaret S. Construction of a knowledge test in lacrosse. M.A. in Physical Education, 1971. 54 p. (M. G. Scott)

A knowledge test, intended for use as an evaluation tool for SHS instruction, was constructed for beginning students in women's lacrosse. The original form consisted of 46 multiple-choice items and was administered to 254 SHS students. After item analysis, 14 questions were omitted and the final test form of 32 items was again analyzed. The final statistics were all acceptable with the exception of the test reliability of .62, which was considered low. Percentile norms were established for use in evaluating student achievement at the high school level. If the specified course content is followed, the test should be an adequate measure of knowledge in beginning lacrosse.

354. WILLIAMSON, Shelly J. Validity of selected tests used to measure fencing ability of college women. M.A. in Physical Education, 1971. 51 p. (N. P. Burke)

Women enrolled in 6 beginning fencing classes (N=100) were given a Subjective Rating of Bouting Ability and an alternative criterion of tournament ranks. The tests validated were a Lunge Accuracy Skill Test and a Subjective Form Rating. Results indicated that the Lunge Accuracy Skill Test and the Subjective Form Rating were not valid measures of beginning fencing ability.

Ithaca College, Ithaca, New York (W. F. Straub)

355. HART, Douglas W. Effectiveness of the "Stroke Builder" as a tennis backhand learning aid. M.S. in Physical Education, 1971. 79 p. (H. H. Merrifield)

The "Stroke Builder" was developed by the investigator as a tennis aid to improve beginner's performance of the backhand drive. Four beginning tennis classes devoted 10 min. of each class period to practicing the backhand drive. Two exp. classes used the "Stroke Builder," and 2 classes used traditional practice methods. The total score, M score and no. of scores on the Hewitt Backhand Tennis Achievement Test were determined for 43 beginning tennis players in a 7-wk. tennis instructional unit that met twice a wk. Pretest and posttest comparisons of total scores and the no. of successful trials on the Hewitt Test revealed statistically significant improvements ($p<.05$) in the exp. class. A posttest comparison, using no. of successful trials on the Hewitt Test, revealed a significant difference occurred between the control and exp. classes ($p<.05$). Other comparisons in the 3 methods of evaluating backhand performance indicated nonsignificant changes. The findings were viewed with caution because of the uncontrollable limitations of weather and limited no. of class periods.

356. LEARY, John E. Personality, demographic and physiological traits of collegiate and professional basketball officials. M.S. in Physical Education, 1971. 74 p. (W. F. Straub)

Collegiate Basketball Officials Association (CBOA) varsity officials (N=689) were ranked from best to poorest according to their combined ratings which they received from coaches and fellow officials during the

1969-1970 basketball season. To maximize between-groups variance, the top, middle, and bottom 85 officials were selected as Ss of the investigation (N=255). The entire National Basketball Association (NBA) officiating staff (N=20) served as the criterion group. Personality data for each group of officials were obtained by administering the California Psychological Inventory (CPI). Returns were received from more than 80% (N=207) of CBOA and 100% of the NBA officials. Physiological data were obtained from a medical report form which had been completed by each official's personal physician. Multiple discriminate function comparisons of the 4 groups revealed that top-rated officials (N=76) were significantly different in personality from bottom-rated officials (N=62). Middle-rated officials were significantly different in personality from bottom-rated and NBA officials.

357. MARKS, Ruth E. A study of personality factors of college women athletes. M.S. in Physical Education, 1971. 72 p. (N. L. Hicks)

Women varsity players competing on varsity athletic teams at Ithaca College were studied during the 1970-1971 academic school year. Ss (N=40) were randomly selected from a population of 102 women athletes who participated on 10 varsity teams. Cattell's 16 PF indicated that athletes differed from the norm and majors differed from nonmajors on certain personality characteristics. Individual and team sports participants did not differ on any of the personality characteristics measured.

358. MILLER, Richard Charles. An evaluation of undergraduate professional preparation in physical education at Ithaca College. M.S. in Physical Education, 1971. 337 p. (W. F. Straub)

Ss of the investigation were the entire populations of the 1969 and 1970 classes (N=177) and the 1969-1970 faculty and administration (N=35). Returns of a questionnaire were received from 160 (90%) of the graduates and 25 (74%) of the faculty and administration. Teacher effectiveness ratings of the graduates were secured from the graduates' chief school officers and immediate supervisors. Statistical comparisons were made between the graduates' teacher ratings and their undergraduate GPAs. Generally speaking, the graduates and faculty and administration were satisfied with the program. However, both the faculty and students desired a longer period of student teaching, more electives, greater emphasis on teaching methodology, less duplication of course content, and more emphasis on elementary physical education and physical education for the atypical child. Study abroad opportunities were also suggested by students and faculty.

359. WOLF, Valerie. The effects of part versus whole learning of a motor skill with educable retarded children. M.S. in Physical Education, 1971. 65 p. (C. J. Ansorge)

Forty subjects, 22 males and 18 females (ages 96-141 months), were randomly selected from a population of educable retarded students enrolled in special programs with the Board of Cooperative Educational Services. The 2 exp. groups used in this study were a Part Group which learned a novel ball-rolling task in 3 parts and a Whole Group which learned the task as a whole unit. Ss were matched according to scores obtained on a preliminary ball-accuracy task and according to sex. ANOVA yielded no significant differences due to method on any of the dependent measures; however, males learned the ball-rolling task in significantly less time, with significantly fewer trials, and with significantly fewer errors than females. Significant method x sex interactions were found for verbal instruction time and for speed errors. Further analyses revealed that females in the Part Group learned the

learned the ball-rolling task with significantly more verbal instruction time and made significantly more speed errors than females in the Whole Group or males in the Part Group. No significant differences were found between Whole Group males and Whole Group females or between Whole Group males and Part Group males.

University of Kansas, Lawrence, Kansas (W. H. Osness)

360. CHANNELL, Susan K. A survey of lifetime sports taught in Kansas schools classified as 4A and 5A. M. S. in Physical Education, 1971. 96 p. (J. L. Pyfer)

361. DENK, Gerald M. The changes occurring in strength and flexibility during a competitive gymnastics season involving high school boys. M. S. in Physical Education, 1971. 122 p. (W. H. Osness)

362. DOLLAR, Linda E. Personal characteristics of women participants in the 1971 National Intercollegiate Volleyball Championships. M. S. in Physical Education, 1971. 96 p. (W. H. Osness)

363. DOREMUS, Gerard B. Physiological changes occurring in junior high school boys as a result of a limited weight training program. M. S. in Physical Education, 1971. 61 p. (W. H. Osness)

364. FARMER, Fred L., Jr. A comparison of selected personality traits of quality and average high school athletes. M. S. in Physical Education, 1970. 94 p. (W. H. Osness)

365. GIESE, Mark L. The effects of isoproterenol hydrochloride during moderate exercise on selected cardiopulmonary parameters of high school boys. M. S. in Physical Education, 1971. 68 p. (W. H. Osness)

366. HUTCHISON, James H. A survey of the qualifications and working conditions of the Kansas City area football officials. M. S. in Physical Education, 1971. 53 p. (W. H. Osness)

367. LUDWIG, Ann B. An evaluation of modern dance as an educational process incorporating physical, creative, and psychological changes within the individual. M. S. in Physical Education, 1971. 97 p. (W. H. Osness)

368. NADVORNIK, Sally F. A study of the effects of relaxation in college level women's badminton activity classes. M. S. in Physical Education, 1971. 269 p. (J. L. Pyfer)

369. NEUNZIG, Kurt W. A study of possible differences in selected pulmonary function measures between swimmers and nonswimmers. M. S. in Physical Education, 1970. 53 p. (W. H. Osness)

370. RE QUA, Kathleen. A survey of Kansas physical education programs for educable mentally retarded children. M. S. in Physical Education, 1971. 50 p. (J. L. Pyfer)

371. RODROCK, Darol E. Weight loss in high school wrestlers and its effects on certain physiological responses. M. S. in Physical Education, 1971. 105 p. (W. H. Osness)

372. THOROUGHMAN, Jacquelyn. The effects of various ambient temperatures, relative humidities, and exercise levels on the concentration of uric acid in the plasma. M. S. in Physical Education, 1970. 60 p. (W. H. Osness)

373. TIGER, Kenneth O. (John). The speed of maneuverability from two different starting positions in football. M. S. in Physical Education, 1971. 46 p. (W. H. Osness)

374. YOUNG, David P. The effects of hand and eye dominance on performance of selected motor ability tests. M. S. in Physical Education, 1971. 78 p. (W. H. Osness)

Kent State University, Kent, Ohio (P. M. Ribisl)

375. DAY, William C. Repeatability of cardiac output determinations during exercise. M. A. in Physical Education, 1971. 96 p. (L. A. Golding)

The repeatability, over a 4-day period, of a CO_2 rebreathing method of cardiac output determination during exercise was evaluated in 15 male Ss (24-44 yr). Two work loads were selected for each subject on a bicycle ergometer, 1 of which elicited a HR of 120-140 bpm while the other produced a HR of 150-170 bpm. Cardiac output, $\dot{V}O_2$, and HR were determined during 8-min. rides at both work loads on each of 4 days. No significant difference was apparent among the M cardiac output values for each test period at either work load. However, Pearson r matrices indicated some test-to-test change in the relative positions of Ss with respect to the M value. Between test plots of cardiac output values showed almost all points falling within 20% of an identity line. Among other factors, some of the variability with Ss might have been caused by day-to-day variations in environmental conditions or activity prior to testing. The CO_2 rebreathing method described offers a reproducible means of assessing cardiac output response to exercise.

376. DEVINE, Judith K. An analysis of the degree of coaching desired by women intercollegiate athletic competitors. M. A. in Physical Education, 1970. 93 p. (B. L. Seidel)

The purposes of the study were to describe the present degree of coaching in college women's athletic programs and to cite evidence concerning the degree of coaching desired by women intercollegiate athletic competitors; and to summarize written information regarding the historical implications of women's intercollegiate athletics, the need for coaching, the qualifications of coaches, and their responsibilities. Information on the degree of coaching presently being offered to competitors and the degree of coaching desired by competitors was obtained with a questionnaire distributed among intercollegiate competitors in Colorado and Ohio which examined 25 highly specific statements about various aspects of competition. The overwhelming general conclusion was that women intercollegiate athletic competitors desire a higher degree of coaching than they are receiving in all 25 of the areas researched. Competitors especially desire more explanation of the effects of drugs, smoking, drinking, diet and nutrition on athletic performance, more detailed and current scouting reports, more thorough recording and use of statistics, and better explanation for substitutions.

377. GAGEN, James J. Risk taking disposition of football coaches. M. A. in Physical Education, 1971. (G. C. Roberts)

The Lynn Achievement Motivation Questionnaire and the Manifest Anxiety Questionnaire were given to 35 football coaches who either attended a Kent State University coaching clinic or were recruited by E. The coaches were also given a Football Situation Questionnaire developed through computer analysis of actual football games by E in which coaches were required to select the most effective offensive strategies from the given choices. Risk-taking was determined by choice of the given (empirically determined) probabilities of success. Results showed that coaches scored high in achievement motivation and low in test anxiety. Results on the Football Situation Questionnaire showed that all coaches selected intermediate risk in critical situations and selected conservative risk in noncritical situations. Results were discussed in relation to achievement motivation theory and risk taking theory.

378. GETTMAN, Larry R. Influence of body weight and physical condition on bicycle and treadmill submaximal work. Ph. D. in Physical Education, 1971. 114 p. (L. A. Golding)

Sixty male college Ss comprising 4 groups [Light (L) and Heavy (H), Conditioned (C) and Unconditioned (U)] were examined on the bicycle and treadmill PWC-150 tests. The submaximal PWC tests on both ergometers consisted of 3 steady state workloads used to predict the work at a HR of 150 bpm. The treadmill work was expressed as % grade attained, vertical work, and total work accomplished. ANOVA showed that H and C Ss had significantly higher PWCs on the bicycle, treadmill vertical, and total work tests than the L and U Ss. The L and C Ss had significantly higher PWCs on the % grade test and on the work per kg body wt. tests than the H and U Ss. In assessing the PWC-150, either the bicycle or treadmill total work tests can be used since they give comparable results for the same individual. H persons have an advantage over L individuals for producing more total work at the same HR on both ergometers. L individuals can produce more work per kg body wt. than H persons on both the bicycle and treadmill.

379. GRAHAM, Gerald P. The effect of dextroamphetamine sulfate on integrated action potentials and local muscular fatigue Ph. D. in Physical Education, 1971. 83 p. (R. R. Bos)

Two groups of male Ss (N=18 each group) performed an isometric or isotonic exercise with the left triceps brachii. Surface electrodes were utilized and the integrated action potentials recorded electromyographically as the muscle contracted at submaximal loads. The muscle was tested first in a rested condition and then again in a fatigued condition. Each S was tested once after ingestion of d-amphetamine (15 mg), once after a placebo, and once without any capsule. D-amphetamine significantly decreased the integrated action potentials during isometric contractions with the muscle in a rested as well as a fatigued condition. No drug effect was obtained during isotonic work. The drug significantly increased maximum isometric strength, blood pressure, and HR. Based on the assumption that a decrease in the integrated action potentials at a specified load indicates increased muscular efficiency at that load, d-amphetamine will significantly delay the onset of local fatigue in cases of isometric work but not in cases of isotonic work.

380. HERBERT, William G. The effect of various degrees of rapid weight reduction and rehydration upon plasma volume, cardiovascular function and physical performance. Ph. D. in Physical Education, 1971. 128 p. (P. M. Ribisl)

Ten college wrestlers were examined to determine the effect of rapid wt. reduction and subsequent forced rehydration upon plasma volume, cardiovascular and metabolic performance. Each S participated in a control (wt. held constant) and exp. series (Ss reduced body wt. by either 3%,

5%, or 7%). Results indicated that rapid wt. reductions of 3% to 7% produced a significant decrease in plasma volume; an impairment in orthostatic tolerance; an increase in HRs during and after a standard treadmill run; and an elevation of postexercise pulse pressure. Following forced rehydration within 5 hrs., plasma volumes were elevated to levels significantly higher than normal and as a result the cardiovascular measures also showed recovery. It was concluded that a wrestler who dehydrates to levels of 3% to 7% over 48 to 72 hrs. will experience substantial reductions in circulating blood volume and the capacity for strenuous exercise. However, complete restoration of blood volume and cardiovascular endurance can be attained before meet time if physiological fluids are consumed during the 5 hrs. after weigh-in, in quantities to nearly replace the incurred wt. deficits.

381. McKINNON, James T. Effects of instructional methodology on attitude modification in social and family living. M.A. in Physical Education, 1971. 46 p. (G. C. Roberts)

The Richardson Attitude Questionnaire was used with 504 students to investigate an optimal teaching method for positive attitude modification in social and family living. Lecture and group discussion methods were compared to a control group. The exp. groups consisted of students enrolled in a personal and community health course at Kent State University. Control groups were drawn from an identical student population which had neither taken nor was currently enrolled in such a course. To control for testing effects, 264 students were pretested prior to exp. procedures. All students were posttested following exp. procedures. Results revealed that, contrary to hypothesis, the group discussion instructional method was not superior to either the lecture instructional method or the control group. Attitudes toward social and family living were not modified in any group. Results also revealed that no instructor effects, or testing effect, affected the results. Results were discussed in terms of the attitude set of individuals, the testing instrument, the instructional methodology, and the testing procedures employed.

382. POLLIFRONE, Pat. Comparison of selected fitness tests and serum cholesterol levels between handball players and fitness program participants. M.A. in Physical Education, 1971. 66 p. (L. A. Golding)

Nine middle-aged Ss were selected from an organized exercise program who were of similar age, wt., ht. and body surface area as 9 handball players participating in a faculty handball league. Comparison tests were serum cholesterol, Schneider Index, recovery HR after a 1-min step test, predicted max $\dot{V}O_2$, PW-170, handgrip strength, and agility. M comparisons of both groups on all tests revealed no significant differences. The handball group had a M serum cholesterol level of 230 mg% versus 215 mg% for the fitness group. It was concluded that handball played competitively on a regular basis can produce and maintain a physical fitness level and a desirable serum cholesterol level comparable to that attained by regular participation in an organized exercise program.

383. SMITH, Warren C. The development of adapted physical education in the field of adult psychiatry. M.A. in Physical Education, 1971. 95 p. (M. C. Resick)

Adapted physical education or therapeutic exercise procedures have been utilized for the rehabilitation of physically handicapped individuals for centuries. Yet little effort had been made to incorporate the techniques and philosophies of PE in the treatment of the mentally disturbed adult until the last few decades. An attempt was made to trace the development, outline the treatment procedures and indicate the problems,

progress and potential of PE's role in the rehabilitation of the mental patient. Substantiation of the belief that therapeutic exercise was meant to affect planned behavioral change which could break through the psychotic process was established. It was discovered that PE benefits could be gained in the treatment of mental illness in the form of increased socialization, improved physical conditioning, release of hostilities and deep aggression, and the promotion of reality-oriented activity involvement. Included in this presentation was a suggested treatment program for various types of mental illness. The program outlined the therapeutic relationships utilized by the therapist toward the patient; the variety of techniques employed to gain the best possible results; the type of activities used; and the desirable outcomes of the patients' participation in this therapeutic experience.

384. ZIMMERMAN, Jeffrey J. Comparison of a steady state exercise baseline to a resting baseline in determining oxygen debt. M. A. in Physical Education, 1971. 49 p. (P. M. Ribisl)

Traditionally, the O_2 debt is measured as the O_2 used in recovery in excess of a resting baseline, while recently it has been made to a baseline of mild, steady state exercise. This study compared these methods of measuring O_2 debt with special reference to accuracy and measurement time. Baseline values were established in a 10-min. period prior to exercise. O_2 uptakes were measured on 10 young males who then rode a bicycle ergometer for 5 min. at a near maximal work load (1500 kpm/m). Ss recovered for 20 min. to either a resting baseline or a baseline of mild, steady state exercise (300 kmp/min). Both tests were repeated for reliability and results treated with a 2-way ANOVA for repeated measures. In comparison to the resting baseline test, it was found that the steady-state test showed a significantly higher net O_2 uptake during the 5-min. work period (+0.958 L) and a nonsignificant but slower recovery of the O_2 uptake back to baseline. It was concluded that neither method showed a significant advantage over the other in terms of accuracy or time of measurement of the O_2 debt.

385. ZUTI, William B. A comparison of hydrostatic weighing with other methods of determining body fat. M. A. in Physical Education, 1971. 100 p. (L. A. Golding)

Body density as determined by hydrostatic weighing was correlated with several equations for estimating body composition and selected anthropometric measurements. Ss were 30 physically active adult males, (25-50 yr). Measurements included bone diameters, trunk and limb circumferences, and skinfolds. These measurements were needed for the equations used to estimate body composition. All Ss were tested and retested within 48 hr. to determine reliability. All measurements had r of .90 or higher and no significant t ratios between tests. A 73-variable correlation matrix of all estimation equations, individual measurements, and density obtained from underwater weighing was compiled for both tests. Results showed that density obtained from underwater weighing had a high correlation with 5 of the individual body measurements, the ht.-wt. methods, and several of the equations for the estimation of body composition.

Lamar State College of Technology, Beaumont, Texas (M. J. Haskins)

386. MUCKLEROY, Mary K. The relationships of selected foot measures to speed in racing in Negro and white girls. M. S. in Health and Physical Education, 1971. 42 p. (M. J. Haskins)

The hypothesis examined was that differences in running ability between Negro and white girls might be due to selected foot measures. Negro and white girls (N=136) were compared on foot length, foot width, ratio of width to length, and running time on the 50-yd. dash. Significant differences were found, with Negro girls surpassing white girls in speed and foot length; however, no significant relationship was found between the 2 measures. The differences found and their resulting critical ratios were so low there seemed no indication to support the hypothesis. A trend toward an optimum foot length was noted.

387. SCOPELITIS, Barbara Louise. A study of skill level, participation, and attitudes toward physical education of women students at Lamar State College of Technology. M. S. in Health and Physical Education, 1971. 48 p. (M. J. Haskins)

The purpose of the study was to determine if there were significant, positive or negative responses of college women to PE and to determine differences in responses related to skill level and amount of participation. The Wear Attitude Inventory and an activity inventory to ascertain skill level and amount of participation were administered to 247 Ss enrolled in 11 different activities. It was concluded that the Ss' attitudes toward PE were very positive and r between attitude and skill and participation were positive but not large enough to be significant.

Long Beach State College, Long Beach, California (D. L. Fornia)

388. ARBOGAST, Allen. Effect of an isometric-isotonic exercise program on the pull-up performance of seventh grade boys. M. A. in Physical Education, 1971. 45 p. (D. L. Fornia)

389. BADILLO, Thomas. A study of college athletes attitudes and use of marijuana. M. A. in Physical Education, 1971. 62 p. (D. L. Fornia)

390. COLE, Harold W. A comparative study of the 25-yard swim and physical performance abilities of Mexican-American and Anglo-American tenth grade boys. M. A. in Physical Education, 1971. 65 p. (J. McConnell)

Mexican-American and Anglo-American soph. boys (N=137 and 96) were compared on the 5 items of the California Physical Performance Test and a 25-yd. swim test. The 2 groups were found to be equally skilled in the standing broad jump, pull-ups, sit-ups, and the 50-yd. dash. Mexican-Americans were superior to Anglo-Americans in the 600-yd. run-walk ($p<.05$), while Anglo-Americans were superior in the 25-yd. swim ($p<.01$).

391. CONRAD, Gaitha E. Attitudes of high school girls toward physical education under flexible modular scheduling. M. A. in Physical Education, 1971. 87 p. (D. Deatherage)

SHS girls (N=605) in which flexible modular scheduling was in effect completed a 51-item questionnaire based on a portion of the Edgington Attitude Scale as well as on statements pertaining to their opinions regarding flexible modular scheduling. A majority of the girls in the sample possessed favorable attitudes toward PE, and 80% of all the girls stated they preferred flexible modular scheduling of PE to conventional scheduling.

392. FEENEY, William. An investigation of overload and underload shot put training techniques. M. A. in Physical Education. 39 p. (J. Rose)

393. HAKY, Brenda B. A survey of the status of physical education records in the Los Angeles secondary schools. M. A. in Physical Education, 1971. 103 p. (D. L. Fornia)
Twelve-item questionnaires were sent to secondary school principals and PE department chairmen in the Los Angeles City Schools to determine the use made of PE records by administrators and physical educators for student evaluation, and to discover the extent to which physical educators contribute to cumulative records. Of the respondents, 33% of the schools used PE growth and development records, there being no significant differences in use at the jr. and SHS levels nor between boys' and girls' physical educators. Use of previous records for evaluation was indicated by less than 20% of the respondents. Recording of PE data in cumulative records was indicated by 35% of the respondents. The most frequently recorded data pertained to physical fitness and motor ability.

394. HARDISON, Delores J. The effect of arm-shoulder strength training of selected muscle groups on softball distance throw for seventh and eighth grade girls. M. A. in Physical Education, 1971. 76 p. (D. L. Fornia)
Seventh and 8th grade girls (N=59) were divided into 2 groups. The exp. group participated in buddy resistance exercises daily for 4 wks. to increase arm-shoulder strength. Both groups were tested for strength and for softball distance throws before and after the 4-wk. exercise program. The exp. group did improve in strength, but improvement of arm-shoulder strength alone did not result in improved distance of a thrown softball.

395. HOLZMAN, Adrienne. A comparison of the attitudes of black high school girls and white high school girls toward physical education. M. A. in Physical Education, 1971. 83 p. (D. L. Fornia)
The Wear Attitude Inventory and the Warner Revised Scale for Rating Occupations were administered to 250 black SHS and 250 white SHS girls in order to compare their attitudes towa d PE, and to attempt to determine whether or not their socioeconomic levels affected their attitudes toward PE. No significant difference between the M scores in attitude toward PE was found between socioeconomic levels within each school.

396. LATHROP, Eleanor. A follow-up study of women graduates in physical education at California State College, Long Beach. M. A. in Physical Education, 1971. 162 p. (D. L. Fornia)

397. McLEOD, David. Planning a boys' physical education curriculum for seventh and eighth grades. M. A. in Physical Education, 1971. 151 p. (J. Rose)

398. MORROW, Norman K. Equating exercise with postexercise heart rates and blood pressures. M. A. in Physical Education, 1971. 60 p. (J. Mastropaolo)
SHS boys (N=35) were tested on a bicycle ergometer at work rates of 300, 600, 900, and 1,200 kpm one min. in order to compare pre and post HRs and blood pressures during and after exercise. Exercise HRs correlated highly with postexercise HRs (r =.98); SBPs (r =.94), DBPs (r =.58), and estimated blood pressures (r =.80) were also correlated. Equations were developed to predict exercise HRs and blood pressures from postexercise determinations. It was confirmed that predictions

were more nearly accurate as the postexercise determination was closer to the termination of exercise.

399. MOUW, Robert. An analysis of factors related to basketball success. M. A. in Physical Education, 1971. 103 p. (J. McConnell)

400. NIXON, Elizabeth A. A cinematographical analysis of the straddle roll in the running high jump for women. M. A. in Physical Education, 1971. 130 p. (D. L. Fornia)

A champion female high jumper was studied from 3 camera views as she performed 30 trials. By measuring angles of movement, the author was able to confirm that the S's form followed recommendations noted by experts in the literature. However, differences were noted during take-off and crossbar clearance.

401. OTTE, Ann. The relationship of peer acceptance to physical performance. M. A. in Physical Education, 1971. 39 p. (D. L. Fornia)

402. POHL, Patrick L. Relative effectiveness of using videotape feedback in teaching the high jump. M. A. in Physical Education, 1971. 64 p. (J. Rose)

Two classes of 9th grade boys were divided into 4 equated groups for learning high jumping. A movie of highly skilled jumpers was shown to all of the boys, after which they were given a live demonstration with brief verbal instructions, and then allowed 3 practice jumps. They were given a test and placed in equated groups. Group I received no further instruction and was not allowed the use of the videotape; group II received verbal instructions only; group III received coaching suggestions as well as use of the videotape for immediate analysis; and group IV used the videotape but was given no further coaching. The t scores for the 4 groups showed no significant improvement of group I ($p>.05$), but significant improvement for groups II and IV ($p<.05$), and group III, ($p<.01$). Comparing the first test to the final test showed no significance ($p>.05$). Combined use of the videotape method and the verbal coaching procedure seemed to be the most favorable teaching process employed in this study.

403. SHAFOR, Linda K. Personality trait differences between high school female athletes in team and individual sports. M. A. in Physical Education, 1971. 78 p. (D. L. Fornia)

The Cattell 16 PF Questionnaire was utilized to compare 271 SHS girls, of which 92 were nonathletes, while 179 were members of 6 athletic squads, 3 being team sports (basketball, field hockey, and volleyball) and the other 3 being individual sports (tennis, badminton, and track and field). Differences were determined and tested for statistical significance among the participants in each of the sports, between athletes and nonathletes, and between team sports participants and individual sports participants. Among the results disclosed were the following: the team group was more trusting, practical, and group-dependent than the individual group; the individual group scored higher on intelligence than the nonathletic group; the nonathletes were more sophisticated and self-sufficient than either the team or individual groups.

404. TOEPPNER, Joan. Basic skills of synchronized swimming. M. A. in Physical Education, 1971. 69 p. (D. Arnheim)

405. WELLS, Wendell. A survey of the general education physical education program, California State College, Long Beach. M. A. in Physical Education, 1971. 70 p. (D. L. Fornia)

Louisiana State University, Baton Rouge, Louisiana (J. K. Nelson)

406. BURKE, Jack F. Eletrophysiological responses to maximum isometric exercise. Ph. D. in Physical Education, 1971. 88 p. (F. A. Drury)

Twenty-one male and 21 female Ss were tested initially, at 6 wks., and 12 wks. for abductor digiti quinti muscle strength; motor nerve conduction velocity as related to changes in nerve diameter; muscle action potential amplitudes and residual latency as related to changes at the myoneural junction. The exp. Ss (11 male and 11 female) underwent a 12-wk. training program in which they performed 4, 6 sec. bouts of maximum resistance isometric exercises 5 days per wk. Factorial ANOVA revealed that the daily program of exercises brought about a significant linear increase in strength; no significant changes were noted in nerve conduction velocity nor in residual latency times; and a significant linear increase was found in the number of muscle fibers participating as training progressed as measured by the amplitude of the muscle action potential.

407. CAVANAUGH, John R. The effects of body weight variations on heart rate during exercise and recovery. Ph. D. in Physical Education, 1971. 72 p. (F. A. Drury)

Normal body wt. was established for 27 college males over a 2-wk. period prior to the study. A bench stepping exercise was utilized in which the Ss stepped at a rate of 180 spm until a HR of 180 was registered on a cardiotachometer. The HR was then monitored every min. for 10 min. after exercise. Each S exercised 5 times under each of the following conditions: normal wt. minus 3%, normal wt. minus $1\frac{1}{2}$%, normal wt., normal plus $1\frac{1}{2}$% and normal plus 3%. Body wt. was decreased by partial dehydration brought about by exposure to dry heat. Body wt. was increased by lead wt. hung on a belt around the S's waist. It was concluded that wt. loss of 3% or less by dehydration had a beneficial effect upon cardiorespiratory endurance. Additional body wt. up to 3% was detrimental to performance. No differences in HR recovery patterns were found among the 5 conditions.

408. CHRISTIAN, Vaughn K. Effects of nonoccluded and occluded blood circulation upon the duration and recovery of submaximal exercise of high and low strength individuals. Ed. D. in Physical Education, 1971. 177 p. (J. K. Nelson)

Adult males (N=60) were selected on the basis of strength scores and assigned to 2 equal groups: high strength and low strength. Each S was tested on isometric elbow flexion strength, relative isometric elbow flexion endurance, and strength decrement following a counterbalanced schedule of the following exp. conditions: a workload of 30% max. strength with nonoccluded blood circulation; 30% workload with occlusion; 60% workload with nonoccluded; and 60% workload with occlusion. Results indicated that Ss of lower strength were able to exercise and recover more efficiently than higher strength Ss. However, the higher strength Ss tended to have smaller strength decrement at the end of each recovery interval. With occlusion and higher %s of relative workloads, the greater relative endurance of weaker Ss tended to disappear. The differences between occluded and nonoccluded performance diminished at higher %s of relative workloads.

409. DAVENPORT, Artis M. A comparison of rubefacient low back hot packs, abdominal cold packs, walking, and rest in recovery following strenuous exercise. Ed. D. in Physical Education, 1971. 81 p. (J. K. Nelson)

Twelve college males ran on a treadmill at 8 mph at 10% grade until a HR of 180 was reached. Immediately following the work bout 1 of 4 treatments was administered for 15 min. The Ss then performed the same exercise again. The HR was monitored by a cardiotachometer and recorded every min. during the 15-min. recovery period following each treadmill work bout. Each S was given all 4 treatments. The abdominal cold pack and rubefacient low back heat were equally effective as recuperative agents and superior to the supine rest and the walking treatments. Lying down after exercise, whether using heat or cold or just resting, resulted in similar HR recovery patterns which were more beneficial than walking with regard to speed of recovery. It was also noted that the amount of exercise required to produce a HR of 180 varies from day to day in the same individuals.

410. DELACERDA, Fred G. The effect of a specific exercise program on the circadian rhythm of the adrenal cortex as determined by the urinary 17-ketosteroids. Ph. D. in Physical Education, 1971. 65 p. (R. E. Steben)

A daily bicycle ergometer ride in which a HR of 180 was reached was performed by 6 Ss 5 days/wk for 3 wks. The adrenal cortical circadian pattern was determined by plotting results of urinanalysis conducted 4 times during a 24 hr. period. The wk. prior to the beginning of the exercise program was used to establish a control pattern. The circadian pattern for each wk. of the exercise program and the wk. following training was graphically compared to the control pattern. The duration of exercise at 0900 and 2100 was recorded both for pre- and post-training as performance scores. Comparisons were made between the 0900 and 2100 hrs. pretraining scores to determine if peak performance was related to peak adrenal cortical function, and comparisons of the 2 post-training scores were used to determine if alteration in adrenal cortical cycle was related to change in physical performance. It was concluded that the exercise program altered the circadian pattern of the adrenal cortex. No relationship was evidenced between physical performance and circadian rhythm before or after training.

411. DELANEUVILLE, Nemour B., Jr. A comparative study of anthropometric measurements of Caucasian and Negro boys and girls. Ed. D. in Physical Education, 1971. 142 p. (F. A. Drury)

Measures of standing ht., sitting ht., wt., length of arm, forearm, hand, entire upper extremity, length of thigh, leg, and entire lower extremity were taken on 900 Caucasian and Negro boys and girls, ages 6, 8 and 10. The no. of Ss in each category of race, sex and age was the same. Physical performance tests in the zig-zag run, medicine ball put, and standing broad jump were also administered to all Ss. A factorial ANOVA showed: the Negro Ss had longer extremities than the Caucasians at all age levels; Caucasian Ss were heavier and had greater sitting ht.; Caucasian Ss performed significantly better in the standing broad jump, medicine ball put, and zig-zag run than the Negro Ss; and boys performed significantly better than girls on all physical tests regardless of race.

412. FLINCHUM, Betty M. Selected motor patterns of preschool age children. Ph. D. in Physical Education, 1971. 236 p. (M. L. Life)

A total of 70 children 22 to 72 mon. of age were filmed while throwing, kicking, striking, jumping-from-ht. and broad jumping before and after 13 days of performing these motor patterns. The Ss were given no instruction in technique, only the opportunity to perform each skill. A boy and girl from each of 3 age levels, classified as exceptionally,

typically, or poorly skilled were selected for final analysis. Three 16mm frames of each skill for each S were used for comparison to a similar photographic series of a mature performer. A second comparison was made between each S's initial and final performances to determine improvement. Analysis of the photographs revealed no differences between boys and girls in the youngest group, but in the older groups the boys' motor patterns more closely resembled the mature performers than did the girls'. The younger Ss improved most. It was concluded that the motor patterns in this investigation are inherent in 2- to 6-yr. old children, and that improvement can result without instruction or coaching if the children are given ample opportunity to perform.

413. GRIFFIN, Mary R. An analysis of state and trait anxiety experienced in sports competition by women at different age levels. Ph. D. in Physical Education, 1971. 69 p. (H. E. Fant)

The Spielberger State-Trait Anxiety Inventory was administered to 146 girls 12-13 yrs. of age, 264 girls 16-17, and 272 girls 19 and older. The data were collected at tournaments in 5 states. Four individual sports (gymnastics, swimming, tennis and track) and 4 team sports (basketball, field hockey, softball and basketball) were represented in the study. The State Anxiety Scale was given within 1 hr. before competition and the Trait Anxiety Scale was administered later under nonstressful conditions. Scores were analyzed by age groups, sports groups, and age in sports. Among the findings were that state anxiety decreased as age increased; state anxiety was higher in individual sports, with gymnastics highest; and there was a significant interaction of age and sport upon state anxiety. The oldest girls had the lowest trait anxiety and the 16-17 yr. old girls the highest. Differences in trait anxiety were found by sports, with gymnasts again showing the highest anxiety. A significant interaction between age groups by sports was found for trait anxiety.

414. HAJUS, John A. A comparison of crossed dominant to unilaterally dominant individuals in accuracy motor performance tasks. Ed. D. in Physical Education, 1971. 93 p. (J. K. Nelson)

Forty crossed dominant and 40 unilaterally dominant 8th grade boys performed 3 tests of throwing accuracy. All tests were similar in that they involved throwing a ball at a stationary target. The tests differed, however, in the types of balls used, the distances thrown, the trajectory employed in the throw, the time allowed to aim, and the starting position. All 3 tests were administered under 3 different conditions: both eyes open, dominant eye open, and nondominant eye only. It was concluded that there appeared to be some support for the hypothesis that unilaterally dominant individuals outperformed crossed dominant individuals in throwing accuracy, particularly in throwing tasks of greater complexity. It was also found, as expected, that performing while using both eyes is superior to performing with either the dominant eye only or nondominant eye only.

415. HILDABRIDLE, Lana G. A comparison of two groups of girl volleyball players classified according to team success on selected motor abilities. M. S. in Physical Education, 1971. 75 p. (J. K. Nelson)

Two groups of SHS girl volleyball players, classified according to their teams' success in regional and state volleyball tournaments, were compared on 5 motor ability test items: leg power, arm and shoulder power, agility, total body response, and grip strength. The relationship of ht. to volleyball success was also considered. The only significant difference between the groups was found in the agility test, in favor of the successful players. There was no significant difference between the

standing or jumping ht. of the 2 groups. It was concluded that the general motor ability items measured in this study were not specific enough to the abilities utilized in volleyball to distinguish between levels of playing ability.

416. JOHNSON, Gary A. Factors affecting elementary school children's opinions and behavior concerning smoking. Ph. D. in Physical Education, 1971. 121 p. (C. R. Emery)

A survey of 1,500 children enrolled in grades 4, 5 and 6 was conducted in East Baton Rouge Parish. Schools were selected according to socio-economic level, public or private, racial composition, and geographic location within the parish. Among the findings were that over 50% of the children had smoked at least once, more boys than girls; smoking by family members greatly increased the probability of smoking and the plans regarding smoking by children; the opinions of children from smoking families differed from nonsmoking families as to the acceptability of smoking and the characteristics of smokers; children were aware of commercial advertising and though it should be curtailed; most children were aware of the hazards of smoking, and most of the children thought there should be more intensive educational programs concerning smoking in the ele. grades.

417. JORGENSEN, Layne W. A cinematographic and descriptive comparison of three selected freestyle racing starts in competitive swimming. Ph. D. in Physical Education, 1971. 140 p. (F. A. Drury)

Three freestyle racing starts, the grab, arms back, and circular arm swing were compared for speed and then mechanically analyzed. Three groups of age-group swimmers, each utilizing one of the starts, were compared in the time required to cover the first 14 ft. of a race. The fastest S within each group was chosen for the cinematographic analysis. There were no significant differences among the 3 styles of racing starts in velocity in the first 14 ft. In general, the movement patterns were essentially the same. The greatest discrepancies were in the movement of the arms and the body's center of gravity trajectory. From a mechanical standpoint the grab start appeared to be the simplest.

418. KELLER, Nolan J. The effects of variations in the placement of mental practice in learning two novel motor skills. M. S. in Physical Education, 1971. 71 p. (J. K. Nelson)

Three practice schedules were utilized, each consisting of 3, 5-min. segments. Two of the segments were allotted for physical practice, while the third consisted of mental practice (MP). The MP segment was placed at the beginning, middle, or end of the practice schedules. Two novel skills were selected, a ball bounce for accuracy and a pencil maze task performed blindfolded. The Ss were 90 JHS boys who were tested on both tasks, then randomly assigned to 3 groups. All practice groups improved significantly on both tasks. There was no significant difference in the improvement among the 3 practice schedules. It was concluded that MP, when used in combination with physical practice, was equally effective at the beginning, middle, or end of the practice schedules.

419. MCBRIDE, William D. Relationship of a two-minute step test and a four-minute step test in the measurement of cardiovascular fitness. M. S. in Physical Education, 1971. 105 p. (J. K. Nelson)

Seventh grade boys (N=148) performed a 2-min. and a 4-min. step test on an 18-in. bench at 30 steps per min. In each of the step tests, a 10-sec. PR was taken 5 sec. after exercise, and a 30-sec. PR was taken

1 min. after exercise. Both step tests were administered twice for test-retest reliability. The Ss also were tested on the 600-yd. run-walk 3 times. The r indicated that the 2-min. test with the PR taken for 30 sec. 1 min. after exercise was as efficient and as reliable as the 4-min. step test. Reliability suffered when the PR was taken immediately after exercise. Step test performance and running performance were not related.

420. MOORE, James L. Effects of selected physiological factors upon pain threshold and pain tolerance in college males. Ed. D. in Physical Education, 1971. 110 p. (J. K. Nelson)

A high arm strength group, an esp. low arm strength group, and a low arm strength control group were selected on the basis of an elbow flexion strength-body wt. ratio. The Ss were tested for pain threshold and pain tolerance utilizing a device in which plastic teeth were sewn into a sphygmomanometer cuff and activated by air pressure. The Ss were then given fatiguing arm exercises and retested. Following initial testing, the low strength exp. group engaged in a 6-wk. progressive resistance wt. training program. Both the exp. and control Ss were tested at 3 wk. and 6 wk. for pain threshold and tolerance before and after fatiguing exercises. It was found that Ss with greater strength were able to tolerate more pain than weaker Ss, but no difference was found in pain threshold. Fatigue lowered pain threshold and tolerance in both high and low strength Ss. Increases in strength resulting from a short training program caused slight increases in pain threshold but progressively elevated pain tolerance.

421. SIMON, Albert J. Effects of mild and strenuous warm-up exercise on cardiac response during strenuous exercise and in recovery. Ed. D. in Physical Education, 1971. 119 p. (J. K. Nelson)

College males (N=50) who scored 80 or above on the Harvard Step Test served as Ss for the study. The 3 preexercise conditions were no warm-up, raising HR to 125 then recovering to 100, and raising HR to 150 and recovering to 100. The exercise workbout consisted of pedaling on a bicycle ergometer until the HR reached 175. The time required for the HR to rise from 100 to 125, 125 to 150, 150 to 175, and 175 to 200 were monitored by a Biotachometer and recorded. Significant differences were found among the preexercise conditions as to time required to reach HRs of 125, 150, and 175 in that as the strenuousness of the preexercise condition increased, the times required to reach the designated HRs decreased, and time required to recover to 100 increased. There was a very low relationship between resting HR and recovery rate; however the Ss were quite homogeneous with regard to fitness.

422. SIMPSON, George E. Oxygen consumption and heart rate recovery curves of subjects of different fitness levels after short and long duration treadmill runs. Ed. D. in Physical Education, 1971. 238 p. (J. K. Nelson)

Two groups of 15 Ss each, 1 representing high-average and 1 low-average in cardiovascular fitness were selected on the basis of the Harvard Step Test. Two treadmill workbouts were performed, a high-intensity run of 1 min. and a long duration walk of 15 min. with progressive increases in elevation. The criterion for termination of the workbouts was a HR of 180. Measures of HR, $\dot{V}O_2$ and RQ were found for the 1st, 6th, 11th and 16th min. intervals during the recovery period. The high intensity workbout produced a higher HR, $\dot{V}O_2$, and RQ than the long duration workbout. The high-average Ss performed better than the low-average Ss on the various measures. The 3 measures corresponded quite closely as indicators of cardiovascular condition.

423. VINES, Roland H. The influence of race and anxiety levels upon performance of novel motor tasks under varying stressful conditions. Ed. D. in Physical Education, 1971. 77 p. (J. K. Nelson)
A total of 428 male university students were given the Spielberger State-Trait Anxiety Inventory. On the basis of their scores, 35 low anxious white Ss, 35 low anxious Negro Ss, 35 high anxious white Ss, and 35 high anxious Negro Ss were selected. Using a counterbalanced practice order all Ss performed under 4 test conditions: a simple motor task with speed as a stressor; the same task with speed and suggested task failure; and a complex task under the same two stressful conditions. A split-plot ANOVA was utilized with race and anxiety as the main plot and type of task and type of stressor as the subplot. It was found that the low-anxious Ss, regardless of race, out-performed the high-anxious Ss with the difference more pronounced in the complex task. The white Ss out-performed the Negro Ss under all conditions, regardless of anxiety level.

Mankato State College, Mankato, Minnesota (R. D. Gorman)

424. FUXA, James Joseph. The planning and organization of a college physical education resource laboratory. M. S. in Physical Education, 1971. 105 p. (R. D. Gorman)
The purpose was to survey college and university PE department chairmen by means of an opinionnaire and determine what philosophies, planning and organization, equipment and materials, and usage had priority in the planning and organization of a resource laboratory. Sixty-two men and women department chairmen from the Central District of the AAHPER responded favorably toward all of the statements of the opinionnaire. By ranking, the data indicated what areas had priority in the planning and organization of a college PE resource laboratory.

425. KNUTI, Ann M. A study of the history of the Finns in Northeast Minnesota as related to their participation in selected sports. M. S. in Physical Education, 1971. 82 p. (M. C. Taggart)
A 3-period study was made of the sports participation of the Finns in Northeast Minnesota. The first period dealt with the time span from their arrival until about 1910. During these years there was little time for activities purely for recreation. The second era dealt with their sports participation from about 1910 to World War II. During this time sports and recreation were developed to relieve monotony and the tendency of men, especially younger ones, to frequent saloons. The third took up the period from World War II to the present. When leisure activities were revived after the war, their origins had largely been forgotten, but the Palo Laskiainen, probably the last traditional Finnish sports festival in the U. S., is still being held annually.

426. LAYTON, Terry Wayne. The effect of a basketball training glove on shooting accuracy. M. S. in Physical Education, 1971. 54 p. (R. D. Gorman)
SHS boys (N=28) in a matched pairs design were randomly assigned to a glove or nonglove treatment group with a player or nonplayer classification. After a pretest, S practiced 25 shots a day, 3 days a wk. for 6 wk. Every 2 wk. a test was given to determine skill level difference from the pretest. No evidence was found that the glove aided in increasing shooting accuracy.

427. MCKINLEY, Rita E. A history of canoe camping in the Ely, Minnesota, area. M. S. in Physical Education, 1971. 54 p. (R. Schellberg)

The canoeing activity along the Minnesota border lake region was briefly discussed in terms of the early explorers, the fur trading companies, and the voyageurs. The development of the Ely area as a special protected wilderness area was also discussed as historical background for the study. The study itself consisted of an account of the early canoe trip guides, the equipment and techniques used on trips, and the early outfitting companies in the Ely area. The information included pertained to the period between 1900 and World War II.

428. RIEDEL, Crutiss. A computer program for scheduling intramural teams and officials. M. S. in Physical Education, 1971. 83 p. (R. D. Gorman)

Because of the increasing popularity of collegiate intramural sports, it was recognized that a more efficient method was needed to assist the intramural director in scheduling the increasing number of teams and officials. Five computer programs were written in FORTRAN V language which scheduled teams and officials to round robin games. The computer generated a listing for each game which included the number of the game, the teams involved, the facility to be used, the time of the contest, and the first choice and alternate officials to work the scheduled games for each day of the week the games might be played. It was found that the computer could be used to schedule intramural teams and officials to games; that it required less time to schedule by the computer than it did to schedule manually; that computer scheduling might reduce the time spent procuring alternate officials; and that the director could flexibly manipulate the data and programs to fit the scheduling situations.

429. TRIPATHI, Surendra N. A radiotelemetry study of the heart rate of trained and untrained distance runners. M. S. in Physical Education, 1971. 47 p. (R. B. Moore)

Thirteen measurements of the HR of 8 varsity track men and 8 untrained college men were taken by means of radiotelemetry before, during, and after a mile run. ANOVA and the Newman Keuls technique were employed to determine significant differences between and within the groups. There were no significant differences between the groups in normal HR, warm-up HR, during the run, and in the recovery HR. The Newman Keuls technique for individual comparison for the 16 Ss revealed that there were 2 plateaus for the HR during the 10 laps of the mile run, the first at laps 2-4 and the second at laps 6-10.

University of Maryland, College Park, Maryland
(D. H. Clarke and G. A. Stull)

430. AMES, Evelyn E. Selected consumer health practices and opinions of older adults in Whatcom County, Washington. Ph. D. in Health Education, 1972. 249 p. (H. L. Jones)

Men and women (N=95) at least 65 years of age living in Whatcom County, Washington, were interviewed. Analysis of data revealing that the use of dietary supplements other than vitamins was not a common occurrence. Active-passive status was not a determining factor in health practices or in the type of health service personnel utilized, but it did influence Ss' opinions about health products and information. Age affected both practice and opinion in that Ss over 80, although reporting a higher incidence of arthritic conditions and hearing impairments, stated they rarely worried about their health. Place of residence and prior education also influenced health assessment. Urban Ss did not worry as much about their health as rural Ss, while Ss with at least one yr. of college were more likely to worry about their health.

431. BOBO, William M. Effects of alcohol upon maximum oxygen uptake, lung ventilation and heart rate. Ph. D. in Physical Education, 1971. 89 p. (G. A. Stull)

Ss, 19 college men, consumed either 0.0, 0.2, 0.4, or 0.6 cc of 190-proof ethyl alcohol per lb. of body wt. Alcohol was diluted with 10 oz. of grape juice, and all Ss underwent all treatments with order of administration assigned at random. Fifteen min. were allowed for consumption and an additional 30 min. for absorption. Resting HR was then determined followed by a 5-min. warm-up and a 10 min. rest. Testing consisted of a series of 3-min. runs separated by 10 min. rest intervals. The first trial was at a rate of 6.14 mph on a 4% incline, and for each successive trial the grade was increased by 2%. Testing ceased when $\dot{V}O_2$ for consecutive runs varied by less than 150 ml. The only significant ($p<.05$) difference in resting HR was that 0.2 dose vaulted in faster rate than did the 0.4. No alteration in $\dot{V}O_2$, exercise HR, lung ventilation, or ventilation equivalent could be attributed to alcohol ingestion.

432. BROOKS, Bettejane P. A comparative study of the physical performance of selected black senior high school girls as related to their socioeconomic status. M. A. in Physical Education, 1971. 55 p. (D. H. Clarke)

A group of black SHS girls (N=44) high in the socioeconomic status, as determined by the Hollingshed Index of Social Position, were compared with a similar group (N=44) determined to be low in socioeconomic status. There were significant differences between the groups on the standing broad jump, shuttle run, and the Ohio State University Step Test, all favoring the high socioeconomic group. No significant differences were found between the 2 groups on the sit-up and the flexed-arm hang.

433. BUNTING, Peter L. Varied amounts of approach-reinstating activity as a determiner of warm-up decrement. M. A. in Physical Education, 1971. 58 p. (G. A. Stull)

Ss (N=24) were given 20 trials on a horizontal (right-to-left) positioning task using the right hand. This was followed by a 10-min. rest, 10 additional trials of the criterion task, another 10-min. rest, 10 more trials, etc., until 4 10-min. rests each followed by 10 trials had been given. At the end of each rest period, varying amounts (0, 5, 10, or 24 trials) of an approach-reinstating activity were introduced. This interpolated task involved horizontal (forward-to-backward) positioning with the left hand. ANOVA of both absolute and algebraic warm-up decrement scores failed to demonstrate any effect which could be attributed to the interpolated activity.

434. COOTER, G. Rankin. Effects of selected dosages and absorption times of dl-amphetamine sulfate on a maximal endurance task by adult, male, Wistar rats. Ph. D. in Physical Education, 1971. 78 p. (G. A. Stull)

Four, 8, 12, or 16 mg per kg of body wt. of dl-amphetamine sulfate were administered to 23 adult male Wistar rats. Absorption times of 30, 60, 90, or 120 min. were allowed; hence all dosage-absorption time combinations constituted the 16 exp. treatments. In addition, a control dosage of 1 cc of distilled water was administered 30 min.prior to an all-out endurance swim. No significant differences in swimming times were found among any of the dosage-absorption time sequences or between the control and all exp. treatments combined.

435. CURRIER, Dean P. An electromyographic analysis of the triceps brachii and anconeus muscles during isometric contraction at varied positions. Ph. D. in Physical Education, 1971. 128 p. (G. A. Stull)

Measurements of electrical activity and tension were taken on the right elbow extensors of 41 normal male Ss (20-40 yrs. of age) while contracting isometrically at 60°, 90°, and 120° by means of quantitative EMG and a cable tensiometer. ANOVA for mean electrical activity was significantly different ($p<.01$) between the 60° and the 90° and 120° elbow positions but not between the 90° and 120° positions. Differences ($p<.01$) in muscle tension were also found between 60°, 90°, and 120° elbow positions.

436. DAVIS, Thomas R. Sport and exercise in the lives of selected colonial Americans: Massachusetts and Virginia, 1700-1775. Ph. D. in Physical Education, 1970. 216 p. (M. H. Eyler)

Diaries and other writings of selected individuals who lived in or visited these 2 colonies were examined. Contrary to the belief of some historians, sport was permitted in colonial Mass., and in some cases even encouraged. The question raised about Va. sport was not one of existence, but rather one of the frequency or extent of participation. Evidence obtained in this study indicated that historians perhaps exaggerated the role that sport played in the southern colonies. No diarists located spoke against exercise; either they were advocates or they were silent on the topic.

437. DILLON, James R. The comparative effectiveness of the three-point stance and the four-point stance in speed of movement of high school linemen. M. A. in Physical Education, 1970. 39 p. (B. F. Husman)

The effectiveness of the 3-point and 4-point stance of offensive football linemen in MT for take-off angles of 0°, 45° right, 45° left, 90° right and 90° left were studied. Male SHS students (N=20) who had participated on varsity or JV football teams and completed 5 practice sessions of 40 min. completed 3 trials in each of 10 stance and direction combinations, moving 9 ft. in each trial. It was found that both stances can be used effectively by offensive linemen in high school football, and that the type of stance best suited to such a performer depends upon the player, the teaching ability and the offensive philosophy of the coach.

438. DOONAN, Gregory W. Sex knowledge: Measurement of its accuracy and relevancy with college freshmen. M. A. in Health Education, 1969. 105 p. (H. L. Jones)

The purpose of this study was to determine what level of knowledge college fresh. possessed in the area of human sexuality; how relevant this information was as viewed by the student; whether this knowledge and relevancy changed over the course of a college semester; and what possible differences, if any, an individual's religious preference and sex may have upon his knowledge of sex and his assessment of the importance of that information. A Family Life/Sex Education Inventory of 136 multiple-choice items was administered to 957 fresh. men and women at the beginning of the semester before any instruction and again at the end of the semester. Females were significantly more knowledgeable than males and had a significantly higher degree of change in knowledge. Although there was a significant increase in sex knowledge by the religious groups over the course of the semester, the no-preference group had a significantly higher degree of knowledge on the pretest, while the Protestant group had a significantly higher degree of knowledge change than did the no-preference group. All of the exp. groups felt the sex information to be important to them, although there were no significant differences among the religious groups regarding the relevance of the sex information. Females felt that the information was of greater importance.

439. DOSER, Nancy Lou J. An electromyographic study of isometric and isotonic contraction in the middle portion of the deltoid muscle. Ph. D. in Physical Education, 1972. 193 p. (D. H. Clarke)
In 73 adult male Ss, 120 quantitative EMG scores per S were collected during performance of isometric and isotonic arm abduction exercises within a replicated, randomized block, 4 X 5 factorial design. ANOVA indicated significant differences ($p<.01$) among the M for angles, rates, and loads. Trend analysis revealed significant ($p<.01$) linear components for the observed variations accounting for 87% associated with angles, 97% associated with rates, and 99% associated with loads. Repeated measures $r=.95$ for both isometric and isotonic data. The highest isometric-isotonic relationships appeared for all rates correlated with the 135° angle. Resulting r's indicated that as much as 77% of variability in EMG scores could be accounted for by the isometric-isotonic relationship.

440. DUNBAR, Dorothy W. The effect of four designs of physical-mental practice upon the learning of the front crawl. M. A. in Physical Education, 1970. 68 p. (A. M. Love)
Volunteers (N=40) were randomly assigned to 1 of 4 treatment groups involving 4 combinations of physical-mental practice on learning the front crawl at the intermediate skill level. Measures of power, speed, and form were obtained before and after the practice periods, including the Fox Power Test. A 2 x 4 factorial design with repeated measures on the first factor (pre- and post-tests) and independent observations on the latter (teaching emphasis) revealed that form was significantly enhanced, but that power and speed were not altered.

441. EINBINDER, Mary Clark. Status of health education major programs in the United States. M. A. in Health Education, 1970. 67 p. (H. L. Jones)
Colleges and universities (N=57) offering a separate undergraduate major in HE were surveyed, school catalogs were reviewed for course content, and a model of the HE curriculum was constructed. The curriculum was compared to the recommended standards and guidelines as published by the AAHPER. The survey revealed that the curricula of many departments were similar although many curricular changes taking place seemed to lack direction. Recommended standards and guidelines were being satisfied in general education, professional education, and in the content areas of mental, emotional, and social health, alcohol, drugs, and tobacco; emergency care, including first aid; safety education; community health; and nutrition. Administrative policies varied among departments and recruitment of major students seemed to lack direction. Graduates tended to find employment in a variety of fields.

442. FARRAH, Linda L. The effects of progressively increasing and decreasing intertrial rest intervals on performance and learning. M. A. in Physical Education. 1971. 75 p. (R. W. Tyler)
College women (N=72) were randomly assigned to 1 of 3 exp. groups, 24 Ss per group. Prior to a 48-hr. rest, all Ss were administered 21 20-sec. trials on the pursuit rotor, but the intertrial rest schedule was different for each group; Group DR had decreasing intertrial rests, Group IR had increasing intertrial rests, and Group CR received constant rests throughout. Six 20-sec. trials with 35-sec. intertrial rests were administered to all Ss after the 48-hr. rest. Analysis of data revealed that there were no significant differences in M performance of the 3 groups; however, interactions between Groups and Trials were significant, indicating a difference in groups, depending on the length

of the intertrial rest interval in the group of trials compared. Reminiscence occurred with the group having massed trials just prior to the 48 hr. rest, while the other 2 groups showed a performance decrement which dissipated after 1 trial. The group having massed practice immediately before the 48 hr. rest recovered to a performance level similar to the other 2 groups.

443. FELDSCHER, Donald S. Effect of an anabolic steroid (Oxandrolone) on endurance, body weight, specific gravity, and percentage of body fat in male rats. M.A. in Physical Education, 1972. 94 p. (G. A. Stull)

Wistar rats (N=35) were randomly assigned to 2 groups and trained 5 days per wk. for 6 wks. Training consisted of swimming a series of 1-min. repetitions with 30 sec. of rest interposed between repetitions. The number of repetitions per session increased from 4 to 24 during the exp. In addition to the swimming, the 16 exp. Ss were given daily 10 mg/kg injections of Oxandrolone in a sesame oil suspension. Endurance was measured as the amount of time the rat could swim with 6% of its wt. attached to the tail. Results failed to show any alteration in endurance, body wt., specific gravity, or % of body fat which could be attributed to ingestion of the anabolic steroid.

444. FRINGER, Margaret N. Changes in selected cardiorespiratory parameters during periods of conditioning and deconditioning in young adult females. Ph. D. in Physical Education, 1972. 294 p. (G. A. Stull)

College women (N=44) conditioned on a bicycle ergometer 2 times/wk. for 10 wks. Each session consisted of one continual all-out ride at a cadence of 60 rpm, beginning at a work load of 360 kgm/min. The load was increased by 180 kgm/min every 2 min. until the S could not continue. Immediately preceding the posttest, Ss were randomly assigned to 2 groups and then detrained for either 5 or 10 wks. Changes ($p<.05$) which occurred after training included higher max. values for pulmonary ventilation, $\dot{V}O_2$, oxygen pulse, exercise HR, and total work output, and a lower max. $\dot{V}_E$. Inactivity periods produced increases in resting HR and max. $\dot{V}_E$, and decreases in total work and max. values for pulmonary ventilation, $\dot{V}O_2$, and oxygen pulse. Greater losses in max. values for $\dot{V}O_2$, oxygen pulse, and $\dot{V}_E$ were revealed for 10 wk. of inactivity. Improvements which occurred in max. values for HR, pulmonary ventilation, $\dot{V}O_2$, and total work following training were retained to some degree during detraining. Total work output was related to several cardiorespiratory parameters, including max. $\dot{V}O_2$ uncorrected for body wt.

445. GIBSON, Richard L. Relative effects of two training programs on sprinting speed. M.A. in Physical Education, 1969. 47 p. (G. F. Kramer)

Freshman male Ss (N=54) were randomly assigned to 3 groups and treatment programs. Group I trained for 22 days by running 3 all-out sprints/day of 100 yds. each. The 2nd group followed the same training program but ran each sprint with a $1\frac{1}{2}$ lb. wt. attached to each ankle. The control group did not participate. Before and after the training programs, all Ss were tested on their ability to sprint 85 yds. with a flying start. No significant differences existed among groups before or after training, but both exp. groups improved their performances significantly. Thus, it was concluded that both training variables were equally effective in improving speed of running.

446. GOLAS, Richard W. A comparative study of two personality dimensions in athletes and nonparticipants. M.A. in Physical Education, 1970. 79 p. (G. F. Kramer)

Athletes were grouped into a team sport group (N=46) and an individual sport group (N=36), and were reassigned into either a combative (N=41) or a noncombative (N=41) sport group. Nonparticipants (N=40) served as a control group. On the extroversion-introversion (E) scale of the Eysenck Personality Inventory there was a significant difference among the team sport group, the individual sport group, and the non participants, as well as a significant difference among the combative sport group, the noncombative sport group, and the nonparticipants. The sport groups were similar when compared to each other, but they scored significantly higher on the E scale than the nonparticipants. The findings on the neuroticism-stability (N) scale revealed that there were no significant differences among any of the groups studied.

447. GRACE, Maxine C. Sport and the English gentleman as viewed in selected novels of John Buchan. M. A. in Physical Education, 1970. 112 p. (M. H. Eyler)

In many of John Buchan's novels, the sports of the English gentleman were revealed. These sports were manifested through the actions, environment and thoughts of Buchan's characters. These characters participated in a wide variety of activities including angling, stalking, shooting, the hunt, falconry, horseback riding, horseracing, mountain climbing, walking, golf, tennis, yachting, boxing, track, rowing, cricket and Rugby football. The gentleman considered sport a value to his health, and physical fitness was maintained through sports such as walking, track, mountain climbing and stalking. A gentleman's mental health also benefited from sports, for he used sport as a relaxant when tense or anxious. Sport was also revealed as influential in the gentleman's daily life. The sporting chance, challenge, and fair play guided the actions of Buchan's characters.

448. GRONBECH, C. Eric. Neuromotor control: Conscious or unconscious in respect to the strength variable of accuracy. M. A. in Physical Education, 1971. 80 p. (B. F. Husman)

On the basis of a pretest in accuracy of the strength evocation for 50% maximum in the dominant arm-elbow flexors after 100 training trials in 4 sessions, 40 male volunteers were randomly assigned to 2 equated groups. The exp. group trained for 7 wks. in a supervised wt. training program designed for max. strength gain in the elbow flexors. The other group served as a control and did not participate in any premeditated activity which would strengthen the elbow flexors. After the prescribed treatment period, the groups were retested and retrained. The exp. group exhibited a statistically significant initial decrease in accuracy over the control group. In retraining (100 trials in 4 days) the exp. group required an equal number of trials (100) as in original training to attain its previous level of performance. This was not the case with the control group. Statistically significant strength gain had an initial detrimental effect on accuracy in strength evocation and the neuromotor pattern had to be relearned (reprogrammed) rather than adapted, due to the increase in strength, supporting the unconscious control theory purported by F. M. Henry as opposed to the conscious control theory of K. U. Smith.

449. HAFEN, Steven B. Drug use and knowledge of eighth grade students in Prince George's County, Maryland. M. A. in Health Education, 1971. 74 p. (H. L. Jones)

In April and May of 1969 an anonymous survey was conducted with 1,658 8th grade students in Prince George's County. Differences in religiosity and academic performance were found between the use and nonuse groups. Knowledge was significantly related to academic performance, plans for future use, religion, residence, and age of Ss. Vapors were used more

frequently than other listed drugs, with marijuana second. Plans for future use of vapors were also indicated more frequently than other drugs listed. "Curiosity" was cited as the major reason for drug use, with nonusers specifying "no need or desire" most often. Ten % of the Ss indicated they had used the surveyed drugs 1 or more times.

450. HART, Edward J. The differential effects of a fear arousing and a reassuring-message on the cancer control behavior of lower socioeconomic females in the District of Columbia. Ph. D. in Health Education, 1971. 120 p. (H. L. Jones)

Ss (N=110) were randomly assigned to a control and 2 exp. conditions. Exp. Ss were exposed to a 4-min. tape recorded message and a selected no. of visual slides designed either to arouse or reduce anxiety about cancer. A Semantic Differential to measure attitudes toward cancer, a demographic and informational questionnaire, and the Taylor MAS to determine general level of anxiousness were administered 1 wk. before the exp., and the former 2 were given immediately after the exp. Health behavior was determined by the frequency of self-administered uterine cancer pipettes returned to the D. C. Health Department. Data analysis showed differential effects across exp. categories ($p<.10$) in favor of reassuring (fear reducing) group. For Ss less than 37 yrs. of age, differences were observed among low anxious ($p<.01$) but not among high anxious Ss. Significant differences were observed among the younger pipette returners ($p<.05$) but not among the older returners. Ss in the reassuring group tended to show a higher level of factual learning than did those in the fear group.

451. HOBART, Donald J. A cinematographical and electromyographical analysis of the modifications occurring during the acquisition of a novel throwing task. Ph. D. in Physical Education, 1972. 84 p. (D. L. Kelley)

Thirty-one Ss practiced a novel throwing task 150 times during 1 sitting. Synchronized cinematography and integrated EMG were used to gather data during the first and last 4 tosses. After practice the Ss significantly decreased angle of the limb at release; total MT; time from the onset of anterior deltoid electrical activity to the beginning of movement and to peak activity; total electrical output of the anterior deltoid; time from the beginning of pectoralis major electrical activity to peak activity and to the beginning activity of the anterior deltoid; time from the beginning of posterior deltoid electrical activity to the beginning activity of anterior deltoid; and time from the beginning of the triceps brachii electrical activity to the beginning activity of the anterior deltoid. The Ss also increased velocity of the limb after .064 sec. of MT (approximately -2.0°) through 35° of movement; velocity of the limb at ball release; acceleration of the limb at .064 sec. of MT and 0° position; deceleration at the 55° position; time from the beginning of posterior deltoid electrical activity to the beginning of movement; and total electrical output of the posterior deltoid. It was concluded that practice brought about specific and measurable modifications in the electrical activity of the muscles. These modifications gave rise to specific alterations in the physical aspects of the skill which directly resulted in the improvements in performance.

452. HOFFECKER, Thomas W. Videotape feedback as a supplementary technique in the presentation of the overhand softball throwing skill. M. A. in Physical Education, 1971. 58 p. (G. F. Kramer)

Three groups of 8th grade girls (N=80) met 3 times a wk. for a period of 3 wks. and were tested in softball throw for distance, overhand throw for accuracy, and hand dynamometer strength. Control, traditional, and video groups received identical explanations and demonstrations of the

overhand softball throwing skill. The control group observed for 3 practice sessions while the traditional and video groups practiced throwing overhand along with corrections and suggestions given from the instructor. The Ss in the video group also viewed every 10th throw on instant video replay. There were no differences in performances among the 3 groups.

453. HURNEY, Maureen Elizabeth. The effect of dietary carbohydrates on total body composition and serum cholesterol levels in rats. M.A. in Health Education, 1970. 42 p. (R. A. Ahrena and H. L. Jones)

During this 8-wk. exp., 20, 100-day-old male Sprague-Dawley rats were fed a high-fat diet supplying the carbohydrate as starch, while the remaining 20 Ss ingested a similar diet supplying the carbohydrate as a mixture of starch and sugars. Ten Ss on each exp. diet were fed ad libitum while the others consumed a diet at 70% of ad libitum intake. Equi-caloric intakes of the 2 diets provided equal intakes of protein, vitamins, and minerals. Body composition and cholesterol changes were altered by dietary level rather than by the source of carbohydrate. Ss receiving both the starch and the mixture diet at 70% of ad libitum intake exhibited less ingesta-free wt. gain, less carcass and serum cholesterol gain, and less total body composition gain than did Ss receiving the exp. diets ad libitum. Ss receiving the mixture of carbohydrates demonstrated higher voluntary activity levels than did Ss in any other group.

454. JARBOE, John W. The relationship of tumbling skill performance level and the ability to self-assess tumbling performance with use of two different techniques of assessment. M.A. in Physical Education, 1971. 86 p. (G. F. Kramer)

Two self-assessment posttests were given to study 40 male PE majors' self-analysis of 3 tumbling skills taught in an 8-wk. tumbling, balancing, and trampoline course. The techniques of videotape replay and mental review were used as tests during the 7th wk. of class. The self-assessment was then compared to a panel of judges' evaluation. The ability to perform or assess selected tumbling skills was not significantly related to the use of either mental feedback or the use of videotape replay.

455. KUNTZ, Gregory F. Effects of training and detraining upon organ weights of the male albino rat. M.A. in Physical Education, 1971. 101 p. (G. A. Stull)

Adult male Wistar rats were randomly assigned to various combinations of activity and inactivity programs during the 2 8-wk. phases of this exp. Activity consisted both of forced swimming for 15 min. per day, 5 days a wk. with 2% of body wt. attached to S's tail and/or running spontaneously in an exercise drum attached to S's cage. After the first phase 37 animals were sacrificed and 59 after the second. Absolute organ wts. were determined, and a ratio of organ wt. to body wt. was calculated. Results failed to demonstrate that absolute organ weights were affected by the exercise programs employed. Ratio wts. were higher ($p<.05$) for the exercise groups for the heart, kidney, and adrenal gland. These changes seemed to be a function of body wt. alteration and dissipated over the 8-wk. detraining period. No demonstrable change was observed for either the absolute or ratio wt. of the spleen.

456. LAUFFER, Richard A. Stated sportsmanship attitudes of selected college and university coaches and faculty members. Ph.D. in Physical Education, 1970. 83 p. (M. H. Eyler)

Coaches (N=252) and noncoaching faculty members (N=77) from colleges and universities in District 2 of the NCAA responded to the Haskins-Hartman Action-Choice Test for Competitive Sports Situations. Coaches

and faculty were coded according to the type of school represented. Coaches were further coded by the type of sport coached and the proximity of spectators to the action. Factors which did not differentiate sportsmanship attitudes included coach-faculty status, college-university status, sport classification, and proximity of spectators to the action. One factor, the public-private classification, identified differentiation in sportsmanship attitudes of coaches and faculty members.

457. LAUTERBACH, Darlene Mae. The effect of a course in family living on attitudes of premarital sexual permissiveness. M. A. in Health Education, 1970. 53 p. (H. L. Jones)

SHS soph. (N=256) from a rural Eastern community were pre- and post-tested on attitudes using the 2 12-item Guttman scales. Half were given instruction in family living and half were given no instruction. The exp. group was also post-posttested in order to test for regression in attitudes. ANOVA failed to show any significant difference between the exp. and control groups in level of sexual permissiveness either before or after instruction. No difference was observed from pre- to post-test for the exp. group, but a significant increase was demonstrated for the control group. It was found that the females and not the males in the control group showed significant increase. Regression in attitude was not demonstrated.

458. LESSER, Mercedes M. Selected field tests as measures of cardiovascular fitness for college age females. M. A. in Physical Education, 1971. 49 p. (D. L. Kelley)

Reliability and validity were identified for 3 field tests: the modified Ohio State University Step Test (O. S. U. test), the 12-min. run-walk test (12-min. test), and the mile run-walk test (mile test). The Astrand-Rhyming submaximal test (A-R test) served as the criterion. Intercorrelations between all tests were established to determine their interrelationships. Women (N=44) were randomly assigned and given 2 trials of all tests. The reliability coefficients were .77 for the O. S. U. test, .80 for the 12-min. test, and .82 for the mile test. The highest achieved validity coefficients were those for the 2 O. S. U. tests, .48 and .51. None of the running events produced a coefficient differing significantly from zero. The highest intercorrelation (-.61) resulted from the comparison between the 12-min. and the mile tests. Other correlations between tests were not significant, and this showed no useful predictive relationship. It was concluded that none of the tests correlated well enough with the criterion to justify substitution.

459. LEVY, Edward R. A comparative study of personality characteristics of college women athletes and nonparticipants. M. A. in Physical Education, 1970. 100 p. (G. F. Kramer)

Female undergraduate Ss (N=124) were divided into 6 groups, 5 of which were volleyball, field hockey, swimming, basketball and multi-participants. The 6th group consisted of nonparticipants. All were given the CPI. ANOVA between the 6 groups on each of the 18 personality characteristics revealed that personality differences did exist between women athletes and nonathletes but not among the different sports groups.

460. LONG, Patricia A. The effects of static, dynamic, and combined stretching exercise programs on hip joint flexibility. M. A. in Physical Education, 1971. 73 p. (G. F. Kramer)

A Leighton Flexometer was used to obtain measurements of the range of hip joint abduction of 54 college women before, following, and 3 wks. after participation in a 6-wk. program of exercise according to either static, dynamic, or combined stretching techniques. During the training

period all groups engaged in 10 min. bouts consisting of a series of 4 exercises. Two groups (static and dynamic) trained 3 times per wk. and 4 groups (static, dynamic, and 2 combined) trained 2 times per wk. A significant amount of flexibility improvement occurred and was retained by all groups following the training and retention periods. No differences were found in the amount of flexibility developed or retained as a result of either static, dynamic, or combined programs, nor were there significant differences between the groups which trained 2 as opposed to 3 days per wk.

461. LUPIEN, Pierre L. The development of an instrument to identify styles of teaching in physical education. M. A. in Physical Education, 1970. 51 p. (K. R. Church)

Sixteen characteristics which represented the essence of the act of teaching were related to decision making by the students or the teacher in the teaching-learning situation. The parameter of each style was related to the nature and the no. of occurrences of different distribution of decisions involving the teacher and the students. The criteria used listed the patterns of decisions concerned with each style of teaching. The testing procedure included observation by 6 volunteer teachers and supervisors of 3 video recordings of 3 PE classes. The observers encoded the decisions that were taken by either the teacher or the students. The no. of decisions that were taken in regard to each characteristic that was part of a teaching style was calculated, as well as the no. of "moves" (units of analysis) that were executed during the class. The physical participation (execution) was also recorded. It was possible to identify styles of teaching in PE, but it was also evident that no one style of teaching in its pure form was predominant in any of the 3 class sessions examined. The results revealed that the concept of "move" needed to be reconsidered as a unit of analysis.

462. MAHANEY, Stephen J. Preliminary water ingestion as a determiner of subsequent swimming performance in the 200-yd. butterfly. M. A. in Physical Education, 1971. 49 p. (G. A. Stull)

University varsity swimmers (N=12) swam 3 trials under each of 4 conditions. Under the 3 exp. conditions, Ss were given 3 mins. prior to testing to ingest either $\frac{1}{2}$, 1, or $1\frac{1}{2}$ liters of water. For the control condition, no food or liquid consumption was permitted for 3 hrs. prior to testing. The 4 conditions were randomly assigned and testing was held 4 times/wk. over a 3-wk. period. Analysis of data revealed that drinking $1\frac{1}{2}$ liters resulted in slower ($p<.05$) performance than any other condition. No other differences among conditions were significant.

463. MARTIN, Thomas P. The oxygen-deficit, oxygen-debt relationship in subjects of high and low fitness. Ph. D. in Physical Education, 1972. 151 p. (G. A. Stull)

Maximum oxygen uptakes of 35 adult males were determined and rank ordered. The top 7 Ss were chosen to represent a high fitness group and the bottom 7 Ss were chosen to represent a low fitness group. Each of these 14 Ss was tested on a bicycle ergometer at work loads of 450, 750, and 1,050 kg-m/min. Oxygen deficit, HR, and % of max. $\dot{V}O_2$ increased linearly, while oxygen debt and oxygen discrepancy increased curvilinearly with work load. Oxygen debt was larger ($p<.05$) than oxygen deficit at the 450 kg-m/min. work load, and the difference (discrepancy) between these 2 variables increased with increasing work loads. Oxygen discrepancy was related to a combination of fitness level and the % of max. $\dot{V}O_2$ required to perform submaximal work.

464. METCALF, James A. The effect of aerobic and anaerobic training on muscle myoglobin concentration, selected hematological

parameters, and swimming endurance in adult male albino rats. Ph. D. in Physical Education, 1970. 94 p. (D. H. Clarke)
Sixty male rats were randomly placed into 1 of 4 exp. groups. One group was trained anaerobically 5 days/wk. for 9-10 wks. by being forced to swim in O_2 free environment with 2% overload for periods up to 25 sec. The 2nd group trained aerobically swimming 5 days/wk. at 2% overload for 15 min./day for 9-10 wks. The 3rd group was exposed to the same anoxic stress as the first group but was not allowed to swim. The 4th group was forced to wade in water 15 min./day 5 days/wk. for 9-10 wks. At the end of the exp. period, all Ss were given an all-out test of swimming endurance and sacrificed. ANOVA revealed no significance ($p>.05$) in blood Hb concentration, erythrocyte count, hematocrit, M corpuscular volume, and swimming endurance. The muscle myoglobin concentration of the hind thigh muscle was higher ($p<.05$) in the aerobically trained group than in the wading group. The anoxic stress group weighed less than the wading group ($p<.05$).

465. MORGAN, Nancy A. Comparison of movement cues and videotape feedback in teaching a gross motor skill to college women in a required program of physical education. M. A. in Physical Education, 1970. 85 p. (A. M. Love)
College women (N=92) enrolled in a beginning swimming class were randomly selected for 1 of 4 treatment groups (movement cue, videotape feedback, movement cue and videotape feedback, and neither movement cue nor videotape feedback) in the study of the butterfly arm stroke with breathing. Each group participated in 3 periods of practice and instruction according to their treatment. Pre- and post-tests of speed and power showed that both groups utilizing videotape feedback during their practice sessions improved significantly. Also, a significant difference occurred between the control group and the movement cue and videotape feedback group in the posttest of power.

466. MURRAY, John L. Retention of isometric endurance and strength as a function of length of training and detraining. Ph. D. in Physical Education, 1971. 114 p. (G. A. Stull)
Male college Ss (N=81) trained isometrically the right elbow flexors on an arm ergometer at 90° flexion for 4 or 8 wks. followed by 4 or 8 wks. of detraining. The effects of the training and detraining upon the parameters of right arm endurance, right arm strength, left arm endurance, and left arm strength were examined. No significant interaction between length of training and length of detraining was found for any parameters. Four and 8 wks. of training produced significant endurance ($p<.05$) but not strength gains in the trained and untrained limbs. The periods of detraining were not sufficient to cause an endurance decrement in either arm.

467. NACSON, Jacques. Transfer of "approach" as a factor in warm-up decrement. M. A. in Physical Education, 1970. 85 p. (R. A. Schmidt)
An interpretation of the set hypothesis for warm-up decrement (WU) was proposed and tested in 2 separate experiments. The hypothesis predicts that if WU is due to the loss of "approach" over rest, engaging in an appropriate "approach"-reinstating activity just prior to postrest performance should result in a decrease in WU. This prediction was tested by having Ss either engage in an appropriate "approach"-reinstating activity, rest, or, as a control for activation, perform a task lacking the "approach"-reinstating activity but requiring the same movement as the first condition, immediately prior to relearning. Findings showed that Ss performed significantly better on initial recall immediately after having practiced on the "approach"-reinstating task than if no such activity preceded the trial.

468. NICEWARNER, Joseph L. A study of physical education in the public junior and community colleges of Maryland. M.A. in Physical Education, 1971. 122 p. (B. F. Husman)
Thirteen public junior and community colleges of Maryland were studied by questionnaire in the following areas: general aspects, the PE service program, the intramural activities program, the intercollegiate athletic program, and the professional preparation program. A broad program of PE activities was offered at most of the colleges; 11 of the community colleges sponsored intramural programs for men and women; and all of the colleges participated in intercollegiate athletics. Professional preparation programs were in operation at 6 of the junior colleges. In most instances the programs of PE were meeting the criteria established by professional organizations and recognized authorities; however, a major weakness existed in that less than 50% of the institutions rated their PE facilities adequate in quality and quantity.

469. NICHOLS, Sandra G. Efforts of forced hypothetically correct visual behavior on skill acquisition by beginners. M.A. in Physical Education, 1971. 50 p. (G. A. Stull)
SHS girls (N=60) were randomly assigned to 2 groups for this 4-wk. exp. Group I practiced 3-ball juggling while wearing blinders which restricted vision to eye level and above. Previous research had indicated that this type of visual pattern is characteristic of skilled performers; hence, the exp. Ss were forced to conform to the visual pattern of skilled jugglers. Group II practiced without any visual restriction. Practice for both groups was limited to 5 min. per day, 5 days a wk. for 4 wk. The posttest consisted of 2 5-min. trials spaced over 2 days with no visual restriction. No significant differences between groups were shown when either the highest number of consecutive catches or total number of catches was used as the criterion.

470. NYCE, Lawrence G. The effect of a light-weight bowling ball upon various stages of learning of beginning bowlers. M.A. in Physical Education, 1969. 65 p. (G. F. Kramer)
Two groups of beginning bowlers met twice a week for a period of 14 wk., both groups receiving identical instruction, except that the exp. group used a light-wt. plastic bowling ball for the first 6 wk. The control group used a conventional bowling ball during the entire study. Game scores and 2 skill tests were used to measure the differences in learning between the 2 groups. Differences in stages of learning between the men and women within each group were also identified. Both groups improved in their bowling ability, but the use of the light-wt. bowling ball did not bring about any differences between the 2 groups.

471. PATTERSON, Marguerite H. Frequency of training as a determinant of elbow flexor strength and endurance. M.A. in Physical Education, 1971. 64 p. (G. A. Stull)
College women (N=60) were randomly assigned to 4 groups and trained 1, 2, 3, or 4 times/wk. for 7 wk. Training consisted of a single all-out bout on an arm-lever ergometer against a resistance of 30% of maximum elbow flexor strength at a cadence of 30 rpm. Strength was recorded on a cable tensiometer, and endurance was determined by calculating the work accomplished during a testing session. Posttest strength and endurance measures showed significance ($p<.05$). Tukey's w-procedure revealed that in endurance the group that trained 4 times per wk. was superior to all others. Despite the significant F for strength, the post-hoc comparison failed to uncover any significant effects for training frequency.

472. PATTERSON, Thomas C. The ability to select statements for correcting performance errors of tumbling skills as related to the ability to perform the same skills. M. A. in Physical Education, 1971. 54 p. (G. F. Kramer)

A 30-item check list evaluated the performances of the headspring, cartwheel, and backward roll of 38 male college PE major students. Another test determined the ability of the Ss to select statements for correcting errors occurring in the performances of tumbling skills. Both evaluations were done with the aid of videotape. Intercorrelations between judges were high enough to establish confidence in the performance scores assigned (r =.75) between total performance scores and total test scores being significant. A significant F was found between total performance scores of the top 10 and bottom 10 Ss.

473. PERRY, Austin D. The effects of exercise on static and dynamic bone strength in male albino rats. Ph. D. in Physical Education, 1971. 98 p. (G. A. Stull)

Ss (N=37) were randomly divided into 4 groups: swimming 15 min. daily on weekdays with a 2% overload and spontaneous exercise wheel running, spontaneous exercise wheel running, swimming as described, and sedentary existence in small cages. After 8 wks. femur wt., length, medial-lateral and anterior-posterior diameter, and left static and right dynamic strength were determined. ANOVA revealed no significant differences among groups for any of these measures. Static and dynamic strength were correlated with their respective structural measures and body wt. All correlations were significant, but not predictive. Static and dynamic femur strength were not significantly different and moderately correlated (r =.56).

474. PUTMAN, Mary L. Bilateral transfer as a function of the degree of first-hand practice and the direction of transfer. M. A. in Physical Education, 1971. 66 p. (R. W. Tyler)

Right-handed college women (N=120) were equally divided between right- and left-hand groups which performed 5, 10, or 20 trials of 20 sec. each on the pursuit rotor. The degree of first-hand practice had no effect on the total amount learned with either the right or left hand. A significantly greater increase in performance was shown in transfer from the nonpreferred to preferred hand than from preferred to nonpreferred in all 3 practice length conditions.

475. REID, Betty Ann. The effects of a conditioning program on the body composition of overweight university women. M. A. in Physical Education, 1970. 136 p. (G. A. Stull)

Exp. Ss (21 overweight college women) participated in 3 weekly 35-min. conditioning sessions over a 14-wk. period while 16 control Ss remained relatively inactive. The criterion of overweight was on the basis of having 25% or more of body wt. estimated as fat. Between-group comparisons resulted in no significant differences in body density, as determined by hydrostatic weighing, body wt., % of total body fat, or girths of the arm, calf, bust, iliac, and thigh. The only significant within-group changes ($p<.05$) were increases in the M bust and iliac measurements of the exp. Ss.

476. ROKOSZ, Francis M. The effects of d-amphetamine sulfate on the swimming performance of rats. M. A. in Physical Education, 1971. 55 p. (D. H. Clarke)

Adult male rats (N=24) participated in 7 treatments which involved 3 absorption times (20, 40, and 60 min.) and 2 dosages (5 and 10 mg/kg) of d-amphetamine sulfate. Each S swam to exhaustion once per day for 7 days with 7% of their body wt. attached to their tails. In addition, the

voluntary exercise of 15 Ss was observed 4 hr. after injection. Swimming endurance was decreased about 50% compared to control, although no specific differences were observed between either of the 2 dosages, the 3 time levels, or the interaction. The 10 mg/kg dose increased voluntary exercise.

477. SEVIER, Vernon A. A comparative study of teaching swimming skills to beginners. M. A. in Physical Education, 1969. 67 p. (G. F. Kramer)

Boys and girls 8-10 yrs. of age (N=34) classified as nonswimmers, were given the Children's Personality Questionnaire and rated for anxiety. They were divided into 2 groups of 17 Ss each, 1 group being taught by YMCA and American Red Cross methods, and a second group with the use of styrofoam swimming bubbles and kickboards. At the completion of 10 lessons of 45 min. each, a watermanship test was administered. No significant difference was found between the 2 groups, and a correlation between watermanship and CPQ indicated little relationship.

478. VAN DYKE, Clyde S. Bilateral transfer of training in basketball dribbling. M. A. in Physical Education, 1970. 59 p. (B. F. Husman)

Second grade boys and girls (N=68) were divided into 2 treatment groups (A and B) and 1 control group (C). All 3 groups were pretested with the preferred and nonpreferred hands in basketball dribbling skill, utilizing the number of bounces observed in a 1 min. period as the criterion. Groups A and B practiced the next 15 consecutive school days for 3 min. each day dribbling a playground ball. Group A (N=23) practiced with the preferred hand, Group B (N=22) practiced with the nonpreferred hand, and Group C (N=23) did not practice. Upon the 16th consecutive school day a posttest identical to the pretest was given. It was found that significant bilateral transfer of training occurred from the nonpreferred hand to the preferred hand, and bilateral transfer of training in basketball dribbling from the nonpreferred hand to the preferred hand was 7.67% greater than the corresponding transfer from the preferred hand to the nonpreferred hand.

479. VORRO, Joseph R. A stroboscopic photographic study of motion changes that accompany modifications and improvements in a throwing performance. M. A. in Physical Education, 1971. 54 p. (D. L. Kelley)

Pre- and post-test stroboscopic photographs of 8 Ss were compared to identify and analyze the alterations of velocity, acceleration, and manipulation elements of a right superior limb that paralleled the improvement of performance in a novel ball throwing task for accuracy. Posttest velocity scores were reduced in value and were considerably more consistent than their pretest counterparts. Initial posttest accelerations were much lower than similar measurements made of the pretest throws. Subsequent posttest deceleration in preparation for the ball release was more gradual and controlled than pretest measurements. Posttest accelerations were again more consistent than the pretest accelerations. Measurements of the degree of ulnar flexion for the posttest far exceeded the pretest measures. This was similarly accompanied by an increase in the consistency of its occurrence.

480. WAHLQUIST, Gary W. The effects of training with varied combinations of resistance and cadence on muscular endurance. M. A. in Physical Education, 1970. 62 p. (G. A. Stull)

Tenth grade boys (N=79) were assigned at random to a control and 9 exp. groups for a 7-wk. exp. period. Each of the 71 exp. Ss trained the right elbow flexors twice weekly on an arm lever ergometer. All

possible combinations of resistance of 3/16, 1/4, and 5/16 max. strength and cadences of 30, 38, and 46 rpm were used. Pre- and post-testing measured the amount of work accomplished at the intermediate cadence and rate. ANOVA failed to reveal any significant interaction or main effects for resistance or cadence. When the over-all exp. effect was compared with the control condition, a significant difference ($p<.05$) favoring the exp. treatments resulted.

481. WITENSTEIN, Ann C. The use of the videotape recorder as a teaching aid. M.A. in Physical Education, 1970. 55 p. (G. F. Kramer)

Two groups of Ss met 3 times/wk. for a period of 2 wks., receiving identical explanations, demonstrations, and spotting techniques in performance of the cartwheel, except that the 17 Ss in the exp. group were allowed to view several of their own performed cartwheels on videotape. The 25 Ss in the control group were not allowed to view videotape at any time. By the 3rd session, both groups improved in their ability to perform the cartwheel, but neither group improved significantly more than the other.

482. ZUCKERMAN, Jerome. Physical training, detraining and inactivity as determiners of knee ligamentous separation force, spontaneous activity, and body weight in adult, male, albino rats. Ph. D. in Physical Education, 1970. 151 p. (G. A. Stull)

For the first 8-wk. phase, 110 adult male Wistar rats were divided into 5 groups. Following phase I, the remaining 56 rats were divided into 6 new groups for the second 8-wk. phase. The 11 groups experienced various combinations of physical activity and/or inactivity. Forced activity consisted of swimming for 15 min. per day, 5 days a wk. Spontaneous activity involved running in an exercise wheel, while inactive rats were confined to cages without opportunity to exercise. Results indicated that absolute separation force (ASF) and separation force ratio (SFR) of the medial collateral ligament were increased by physical activity ($p<.05$). Detraining failed to alter ASF, and inactivity elicited no difference when compared to initial controls. Forced swimming failed to alter spontaneous activity (SA), but confinement during phase I exerted a detrimental effect upon SA during phase II ($p<.05$). Forced swimming plus SA resulted in lower body wts. than either inactivity or swimming without volitional exercise ($p<.05$).

University of Massachusetts, Amherst, Mass. (H. J. VanderZwaag)

483. DOTO, Frank X. An analysis of the discovery process in teaching concepts related to physical activities based on an interpretation of Festinger's theory of cognitive dissonance. M.S. in Physical Education, 1971. 88 p. (H. J. VanderZwaag)

A theoretical analysis of the discovery process in teaching concepts related to physical activities was undertaken using Festinger's theory of cognitive dissonance as a basis for understanding the problem of motivating students to attempt to discover solutions to problems. It was demonstrated that by structuring the discovery situation so that the student may experience success in his attempts to learn, the student will be motivated to attempt solutions to problems. Guided discovery and problem-solving situations were examined to demonstrate the teaching of such concepts as the uses of various golf clubs, offensive maneuvers in soccer, the components of vaulting, the physical attributes to be developed in weight training, and offensive strategy in basketball.

484. GEARON, Joseph P. A kinetic and kinematic comparative analysis of Tom Weiskopf and Doug Sanders' golf drive. M.S. in Physical Education, 1971. 92 p. (S. Plagenhoef)

A comparison of 2 golf drives in terms of force, moments of force, velocities, and accelerations. Kinetic and kinematic data were compared and analyzed in order to point out the similarities and differences which existed between the Ss. The conclusions pointed out that Weiskopf developed the greater velocity of his club, he displayed better timing in his drive, he made effective use of his body as a link system, and he had greater moment readings for nearly all body segments. The study further pointed out that the relative speed of the club head to the ball velocity indicated that Sanders had a greater striking mass at impact.

485. HARRISON, Peter W. Methods to determine the moments of force on all body segments during a nonsymmetric 3-dimensional motion. M.S. in Physical Education, 1971. 118 p. (S. Plagenhoef)

A kinematic and kinetic analysis of the human S was made during the execution of the bowling action in cricket. Link systems were selected to consider not only the limbs in the final selected chain, but of all the segments of the human body. The trunk segment was subdivided into separate links to represent hip rotation, rotation of the plane of the glenohumeral joints about the spinal column, and motion in the sagittal plane. Subdividing the trunk into these separate motions made it necessary to calculate the center of gravity and radius of gyration of these subdivisions together with the percentage of trunk weight mobilized by the separate motions. Conclusion: The forces and moments of the segements not in the final selected link system do affect the forces and moments of the segments in the final selected link system; when calculating the forces and moments of the separate subdivisions of the trunk, the segments in question are included in the final link system; and the combined weight of the separate subdivisions of the trunk should not exceed the total trunk weight.

486. LANDIS, Marcia M. The relationship of improvement in dynamic balance to motivational and nonmotivational balance beam training, intelligence, and sex in severely retarded children. M.S. in Physical Education, 1971. 74 p. (R. J. James)

Twenty severely retarded children ages 7-10 were organized in 2 groups: 10 under a motivational balance beam condition and 10 under a nonmotivational condition. Both groups were trained in 30-min. sessions 4 times a wk. over a period of 8 wk. One group was trained in dynamic balance on a balance beam providing auditory and visual motivational cues; the other group was trained on the same beam without the motivational cues. All Ss were pretested in dynamic balance and were tested after every 2 wk. of training on the balance beam without the auditory and visual stimuli. A reliability coefficient of .812 was established for the dynamic balance test by ANOVA. A trend analysis revealed no significant difference in performance trends under the motivational and nonmotivational conditions. The r's between IQ and improvement in dynamic balance were not significant in either group. In comparing low IQ Ss to high IQ Ss, a trend analysis revealed that the overall main effect between group mean performance was significant ($p<.05$), although the difference in trends was not significant. A trend analysis comparing male and female improvement in dynamic balance resulted in a nonsignificant difference between these 2 groups.

487. SIEGEL, Donald S. Visual ambiguity and skilled performance. M.S. in Physical Education, 1971. 90 p. (E. V. Hubbard)

The relationship between figure-ground discrimination, as measured by the Witkin Embedded Figures Test, initial response time in paddling a tennis ball emerging from complex displays consisting of ambiguous

films, and accuracy of stroking the ball into a target was investigated. Ss were 34 volunteer male college students. The data comprised scores taken from the 3 measures, i.e., Embedded Figures Test times, initiated response times, and accuracy points. EFT and initiated response, initiated response and accuracy, and EFT and accuracy were correlated. The correlation between initiated response and accuracy was the only significant finding. Those Ss who waited longer to initiate responses to the balls emerging from the complex backgrounds were found to be more accurate in stroking those balls into the high point area of the target. An additional correlation between initiated response in a plain white display and accuracy failed to exhibit a comparable relationship.

488. SMITH, Paula J. The relationship between time perception and motor ability of high school girls. M.S. in Physical Education, 1971. 79 p. (W. Kroll)

Two tests of motor ability and 1 test of rhythmic ability were administered to 108 SHS girls belonging to the gentile, Negroid, and Semitic social categories. ANOVA, r, and differences between group M techniques were utilized. The findings indicated that there was a correlation between motor ability and rhythmic ability (r's of -.32, .36) and the Negroes were superior in rhythm and in speed. Also, such identification factors as age, training, intelligence, ht., and wt. did not appear to influence the variables of this study.

489. WARD, Graham R. Levels of selected biochemical compounds during muscular contraction of the rat. M.S. in Physical Education, 1971. 64 p. (D. W. Edington)

Male albino rats (134-180 days of age) were made to run on a rodent treadmill for 16 weeks. The "trained" rats along with their nontrained sedentary controls were anesthetized with pentobarbital and the gastrocnemius-plantaris muscle group was prepared for in situ muscle stimulation. The nerve was severed 2 cms. proximal to the muscle and a nerve stimulation clamp was applied. Responding to 2 contractions per sec., the left leg worked until quick frozen between aluminum clamps precooled in liquid N_2. Work time was 0-time, .5 min., or 10 min. The muscles (left stimulated, the right leg nonstimulated) were pulverized, extracted in acid, and prepared for the specific enzymatic or colorimetric techniques. Assays and the standards were performed in triplicate. The results showed glucose decreased during exercise from 1.86 to 0.17 μ mole per gm and glycogen from 7.09 to 3.56 mg per gm. Glucose-6-phosphate concentration increased from .34 to 1.22 μ mole per gm, lactate from 2.24 to 5.61 μ mole per gm, and α-glycerophosphate from .50 to 1.23 μ mole per gm. Glycerol also showed an increase of concentration from .12 to .34 μ mole per gm during exercise. The final substrate alanine accumulated from .16 to .48 μ mole per gm.

490. YEARY, Sheryl A. A comparison of achievement motive and anxiety level in college women athletes in selected sports. M.S. in Physical Education, 1971. 104 p. (W. Kroll)

Seven psychological criterion measures were obtained from 103 women athletic Ss representing several sport groups and 3 schools: Springfield C, U. of Mass., and Westfield SC. Each of the criterion measures was an assessment of either need achievement or anxiety and was represented by 1 of 4 written tests used. A subgroup (N=18) was selected from the U. of Mass. on the basis of 2 criterion measures, so that 2 opposing groups were formed (high-achieving N=9, low-achieving N=9). Fifty % relative isometric endurance holding time measures were obtained from Ss in the subgroup. While no statistically significant differences were found between sport groups on the criterion measures nor between high and low achieving groups on relative isometric endurance at 50% load, a reclassification

of Ss in the subgroup (N=18) into high and low strength groups uncovered a statistically significant difference between the 2 groups on 50% relative isometric endurance holding time, with the low-strength group demonstrating higher endurance scores.

University of Michigan, Ann Arbor, Michigan (G. G. Reiff)

491. BEHEE, John R. Fielding H. Yost's legacy to the University of Michigan. Ph. D. in Education (Physical Education), 1970. 268 p. (G. Reiff)

492. BROOKS, George A. Temperature, skeletal muscle and liver mitochondrial respiratory functions, and oxygen debt. Ph. D. in Education (Physical Education), 1970. 100 p. (R. Beyer and J. Faulkner)

493. DORRIS, Francis P. An application of programmed learning to beginning fencing skills. Spec. Ed. (Physical Education), 1970. 82 p. (J. Farrell)

494. FRANGIONE, Frank J. The effect of training on metabolic responses to short exhaustive run tests. Ph. D. in Education (Physical Education), 1970. 142 p. (M. Foss)

495. JARRETT, Daniel L. The correlation and reliability of bent and straight knee sit-up tests for boys using one-minute and unlimited times. Spec. Ed. (Physical Education), 1970. 60 p. (G. Reiff)

496. LAWSON, Hal A. The evaluation of elective programs of physical education in American universities. Ph. D. in Education (Physical Education), 1970. 258 p. (P. Hunsicker)

497. MULHAUSER, Frederick A. An exploratory study of relationships of space utilization with selected dimensions of behavior in children age 5. Ph. D. in Education (Physical Education), 1970. 132 p. (S. Cooper)

498. WATT, Edward W. The effects of training and retraining on the distribution of cholesterol, triglyceride, lypoprotein and nitrogen in tissues of albino rats. Ph. D. in Education (Physical Education), 1970. 121 p. (M. Foss and W. Block)

499. WEARRING, George A. Variations in knowledge, behavior and student opinion of instruction as related to intensity of health instruction. Ph. D. in Education (Physical Education), 1970. 140 p. (S. Best - P. Hunsicker)

500. WOODS, Donald S. The relation of physical fitness and absenteeism due to illness of ninth grade boys of city school systems in Durham, N. C., for the 1967-68 school year. Spec. Ed. (Physical Education), 1970. 64 p. (S. Galetti)

Michigan State University, East Lansing, Michigan (V. L. Selby)

501. IGO, Alison Jean Clinton. Recreation research mail survey techniques: Effect of self-administration and nonresponse. M. S. in Park and Recreation Resources, 1971. 91 p. (M. Chubb)

Two recreation surveys were implemented by means of a mail questionnaire and follow-up interviews of both respondents and nonrespondents in selected counties. Taking the data from these response groups, respondent interview data were compared with data from respondent interviewee mail returns, total mail returns, and nonrespondent interviews in each county where a follow-up was done. Comparisons were made on the basis of educational level, total family income, amount of recreational participation, and geographic location of recreational activity. On the basis of study results, it is possible to accept the hypothesis that there is no significant difference between respondents and nonrespondents, and predictions based on partial response to each can be assumed to provide a valid representation of the needs, preferences, and behavior of a given recreation population.

502. MEGANCK, Richard A. Recreational boat transportation in Michigan: A study of use patterns and characteristics of boaters who transport their boats. M.S. in Park and Recreation Resources, 1971. 81 p. (M. Chubb)

This study was designed to add to the overall transportation information to be used in a computer simulation model to predict future demand for recreational boating in the State of Michigan. Analysis of returned questionnaires indicated that more than 55% of respondents transported their boats during 1968, 75% by trailer, and 25% by car top. It also was shown by comparison to 1965 data that the boating fleet is becoming more mobile in Michigan.

503. WANG, Darsan. Camper preferences and campsite characteristics at Ludington State Park, Michigan. M.S. in Park and Recreation Resources, 1971. 137 p. (M. Chubb)

A 100-day period during the 1970 camping season was selected to collect data on 4 camper preference variables: occupancy rate, transfers-in, transfers-out, and net transfers. Eleven campsite characteristics selected were capacity, topography, tree cover, ground cover, drainage, number of neighbors, and proximity to lakes, showers, toilets, drinking water, and playground. The conclusions reached were that occupancy rate was the best camper preference indicator, and that drainage, access to lake, capacity, number of neighbors, ground cover, access to shows, and remoteness to playground exerted a significant influence upon camper preferences. Topography, tree cover, access to toilets and drinking water were not shown to be significant factors. From the results of these analyses, it was recommended that the influence of campsite characteristics upon camper behavior demonstrated in this study be taken as a tentative scientific proof and applied to the design of future campgrounds.

University of Minnesota, Minneapolis, Minnesota (R. Bole)

504. GRODJINOVSKY, Amos. Standardization of warm-up and its effect on performance and on selected physiological parameters. Ph. D. in Physical Education, 1971. 147 p. (J. F. Alexander)

The effect of five warm-up routines on the 880-yd. running time of the group as a whole (N=42) and divided to fitness levels was studied. Warm-up, in general, improved performance ($p<.05$), and there was no significant difference ($p>.05$) among warm-ups. However, it seemed that warm-up intensity improved performance in the highly fit Ss, had a slightly deleterious effect on the unfit Ss, and had no systematic effect on the fit Ss. From the Ss participating in the above phase, 8 took part in a physiological phase investigating the effect of 4 warm-up routines on MVO_2, EMG from the rectus femoris, HR, and treadmill running time.

EMG and HR were telemetered and recorded in 20-sec. intervals until exhaustion. Larger $M\dot{V}O_2$ values were recorded when the test for $M\dot{V}O_2$ was preceded by a high intensity warm-up. EMG data indicated that with the onset of fatigue there was a greater synchronization among motor units already at work, and that additional motor units were recruited. $M\dot{V}O_2$ and HR had a near linear relationship with work intensity.

505. HIGGS, Reginald W. Attitudes toward persons with physical disabilities as a function of information level and degree of contact. Ph. D. in Education, 1971. 101 p. (J. A. Alexander)

Subjects (N=376) in 10 classifications included 4 secondary school groups (N=134), 2 groups of college undergraduates (N=117), and 4 groups consisting of counselors and parents (N=125). AVOVA for knowledge level revealed significant differences in favor of female counselors vs female parents; fathers of handicapped children vs fathers who had physically normal children; SHS males vs JHS males. AVOVA for level of contact revealed significant differences in favor of nonhigh school females vs high school males; female counselors vs mothers; male counselors and parents vs college males; male counselors vs fathers; fathers who had a physically handicapped child vs fathers who did not. AVOVA for attitude revealed significant differences in favor of nondisabled college undergraduate women vs. disabled college women; and nonhigh school males vs high school males.

506. HIGGS, Susanne L. Endurance of good and average women competitors under self-motivated and competitive conditions. Ph. D. in Physical Education, 1971. 125 p. (M. U. Wilson)

Two groups (N=20), 1 classified as highly competitive and the other as average in competitiveness, were selected by observational techniques from 46 women PE majors. $M\dot{V}O_2$ was established for each S utilizing Taylor's intermittent treadmill technique. Following this testing, each S underwent two all-out performance runs at the work level which had elicited her $M\dot{V}O_2$. The first performance run was done under self-motivated conditions in which no verbal motivation or extrinsic incentives of any kind were given. The second performance run was completed under competitive conditions. Two treadmills were set up side by side and 2 Ss paired, on the basis of their previous performance times, ran simultaneously, competing against each other. The mean performance time of the good competitors exceeded that of the average competitors under both experimental conditions ($p<.10$). Competitive motivation increased the M performance time of both groups approximately 30 sec. ($p<.01$). The average $M\dot{V}O_2$ for all Ss was 41.31 cc/kg/min and the M run time (self-motivated) at the work level which had elicited the maximal O_2 intake was 4:35.8 min.

507. MILLER, Randolph W. The effect of varied rest intervals following vigorous warm-up on physical and physiological performance. M. A. in Physical Education, 1971. 62 p. (J. F. Alexander)

The effect of 5 and 8 min. rest intervals, following a vigorous warm-up on HR, $M\dot{V}O_2$, and endurance treadmill running performance, was studied. $M\dot{V}O_2$ was determined by the intermittent work test. Ss (N=11) performed a vigorous warm-up, consisting of a 3 min. treadmill run at 7 mph and 50% of the grade eliciting $M\dot{V}O_2$, prior to each rest interval. Following each rest interval (sitting) Ss ran either an intermittent test for $M\dot{V}O_2$ or an all-out (timed) treadmill run at the grade eliciting the $M\dot{V}O_2$. No significant difference was observed between a 5- and 8-min. rest interval on HR and $M\dot{V}O_2$. $M\dot{V}O_2$ was slightly higher following both rest interval conditions than the established $M\dot{V}O_2$. Uncorrected ventilatory volume was higher and O_2 extraction lower after the 8-min rest

interval but the differences were not significantly different from the 5-min. rest. Both physiological measures following each type of rest interval differed (uncorrected ventilatory volume higher and O_2 extraction lower) significantly ($p<.01$) from those associated with the established $M\dot{V}O_2$. The M treadmill running time was 9.8 sec. longer following the 8-min. rest interval.

508. NAZAR, P. Robert. Comparison between the curved blade and straight blade hockey sticks on shooting velocity and accuracy in university varsity ice hockey players. M.A. in Physical Education, 1971. 143 p. (J. F. Alexander)

Shooting velocity and accuracy were measured by a special photoelectric cell-sound sensor apparatus. Ss (N=26) were divided into 2 groups based on stick preference and were given 5 trials of the wrist and slap shots in the standing and skating positions using both types of hockey sticks. The relationship of grip strength, ht., and wt. to shooting velocity and accuracy was also investigated. ANOVA demonstrated that the curved blade hockey stick imparted a significantly greater velocity and was significantly more accurate than the straight blade stick for both groups. The skating slap shot was found to be the fastest and least accurate. The standing wrist shot was the slowest and most accurate regardless of stick preference, although some differences in shooting accuracy did exist when Ss transferred to the nonpreferred stick.

509. OLSEN, Burton K. A study of school-sponsored and cosponsored recreation programs in the North Central region of the United States. Ph. D. in Education, 1970. 220 p. (J. M. Anderson)

This study determined how well key leaders in education and recreation accepted public school-sonsored and cosponsored community recreation programs. Procedures used included a search of literature and a questionnaire to a stratified sample of key leaders in Ed. and REC based on state population representation. An 88% return was obtained from 657 persons queried. Municipal REC and school administrators, REC and education dept. chairmen, and state directors of HPER were queried. Major topics discussed were involvement, agency cooperation, taxation, types of sponsoring agencies, use of boards, school facilities usage, type of educational degree recommended for leaders, length and period of program duration, age involvement, problems, advantages and disadvantages.

510. RYDER, Mary Ann. The structure of a sport: Implications for teaching and learning in physical education. Ph. D. in Education, 1971. 137 p. (E. M. Jaeger)

This study was based on 2 premises: that concept learning results in a change of behavior (which in PE means a change in playing behavior), and that an understanding of the structure of any body of knowledge (of which concepts are an integral part) will increase the individual's ability to use that knowledge. The problem was concerned with the structure of a dynamic game. The writer analyzed the structure of the game of badminton into its basic components, stressing interrelationships; developed a theoretical construct of the game composed of strategy concepts and their corresponding appropriate behaviors; compared the theoretical construct as developed in badminton with its application in other sports (volleyball, tennis, and soccer); and suggested several learning experiences designed to develop selected concepts of badminton and their corresponding behaviors. The purpose was to lay the theoretical framework for a different approach to program planning in PE. The indications are that the structural-conceptual-behavioral approach to curriculum in other subject matter areas is yielding favorable results. It is reasonable to assume that its use in PE would produce comparable results.

511. SERFASS, Robert C. Changes in cardiorespiratory fitness and body composition of participants in selected physical education classes. Ph. D. in Education, 1971. 204 p. (J. F. Alexander)
The purposes of this study were to test for improvement in $M\dot{V}O_2$ in male college students (N=17) participating in 8 wks. of soccer, conditioning (N=18), and swimming (N=17); test for improvement in running performance of the 50-yd. dash, 600-yd. run-walk, and 12 min. run; determine the extent of changes in body composition variables during the 8-wk. PE programs; make between-group comparisons on pre- and post-test measures of cardiorespiratory fitness and body composition; show relationships between physical fitness and body composition variables; and develop regression equations to predict $M\dot{V}O_2$ from more conveniently measured independent variables. $M\dot{V}O_2$ improved significantly in all 3 activity groups. Improvement in $M\dot{V}O_2$ may not always be detected by widely used running tests of endurance fitness, due to training vs testing activity specificity. The soccer group demonstrated a small but statistically significant increase in body fat (decrease in total body water). Regression equations, developed to predict $M\dot{V}O_2$, produced R^2s ranging from .10 to .64. The best subset of variables for the prediction of $M\dot{V}O_2$ was a pre-test subset containing body wt., 600-yd. run-walk, and 12-min. run (R^2 = .635, standard error of estimate = 3.615 cc/kg BW/min.).

512. TATE, Judith A. Relationship of reaction time and movement time with three measures of balance in college women. M. A. in Physical Education, 1971. 94 p. (M. U. Wilson)
RT, MT and balance measures on the Bass Stick (eyes open and eyes closed), the 2-dimensional stabilometer and the 3-dimensional dynabalometer were taken on 68 college women. Ss practiced on the stabilometer 4 sessions and on all other balance tests 5 sessions. With 2 exceptions, none of the resulting rs were significant ($p>.05$): MT was significantly related to sec. off-balance on the dynabalometer in the first session and first session scores on the Bass Stick (eyes closed). In addition the no. of times off-balance on the dynabalometer was inversely related to amount of time off-balance ($p<.01$).

513. TRACY, Robert A. Case studies of the effect of systematic training on maximal oxygen consumption, myocardial function and running performance among selected middle distance runners. Ph. D. in Physical Education, 1971. 225 p. (J. F. Alexander)
Running performance and selected cardiovascular responses of 6 university middle distance runners were studied during treadmill and bicycle exercise before and after 4 and 6 wks. of training. $M\dot{V}O_2$ and track running performance increased 4.34% and 3.51% respectively. Impedance cardiograph estimates of relative changes in cardiovascular parameters at rest and during treadmill and bicycle ergometer work were examined. HR, (dZ/dt) and the Heather Index of left ventricular function increased linearly with work load and were unchanged after training. Stroke volume and cardiac output were unchanged after 4 wks. training and decreased 4.36% and 3.78% respectively after 6 wks. training. T (ventricular ejection time) decreased in relation to increases in HR. The Q to Z interval decreased with increased load and HR and plateaued before maximal HR was attained. The impedance cardiograph provided information on relative changes in cardiovascular parameters under rest and exercise conditions without danger or discomfort to the S. The convenience, reproducibility, low cost, atraumatic and noninvasive nature of the procedure widens its use to include human exercise research.

514. TSAI, Min-chung Tsai. A study to determine the relationship between physical fitness and maximal work capacity, professional activity level, and scholastic aptitudes of physical education

majors. Ph. D. in Physical Education, 1971. 144 p. (J. F. Alexander)

Student Ss (N=126) were tested during 1968 to 1970 on dips, sit-ups, wt., 300-yd. run, 12-min. run, and maximal aerobic capacity (old data), and 35 additional Ss were used during the yr. 1971 for the same test items (new data). All physical fitness variables intercorrelated significantly ($p<.05$) except $M\dot{V}O_2$ and dips. Test-retest reliability of the variables were significant ($p<.01$). $M\dot{V}O_2$ can be adequately predicted ($R^2 \geq .50$) in PE majors from dips, wt., sit-ups, and 12-min. run, with 12-min. run the best single predictor. There is a significant but low relationship between physical fitness and specific sport skill in professional activity (based upon ratings by experts). There are no relationships between physical fitness and performance on the scholastic aptitude tests and between scholastic aptitude and professional activity skill based upon ratings by experts.

University of Missouri, Columbia, Missouri (J. A. Roberts)

515. BAYLISS, Valerie A. The relationship of real self-concept and ideal self-concept of appearance and physical performance of fifth grade students. M. A. in Physical Education, 1971. 55 p. (M. M. Thompson)

516. ELGIN, Betty L. The relationship of demographic data factors to the health interests and health misconceptions of selected Missouri College students. Ed. D. in Physical Education, 1971. 127 p. (M. M. Thompson)

517. GROVES, Richard. A cinematographical analysis of four styles of the racing start in swimming. Ed. D. in Physical Education, 1971. 139 p. (B. G. Woods)

518. LEVI, Christine W. Analysis of sequential emergence of elements in the movement pattern of hopping. M. A. in Physical Education, 1971. 75 p. (M. M. Thompson)

519. QUAN, Lynda M. Perceptual-motor performance of advantaged and disadvantaged preprimary school children. M. A. in Physical Education, 1971. 121 p. (M. M. Thompson)

520. RAMSEYER, G. William. The effects of coeducational grouping across anxiety levels for college physical education beginning golf classes. Ph. D. in Physical Education, 1971. 92 p. (B. B. Godfrey)

521. WEICK, Lucinda K. An analysis of the influence of experience in physical activities on certain psychological-social and physical needs of university freshman and sophomore men and women. Ed. D. in Physical Education, 1971. 182 p. (M. M. Thompson)

University of Montana, Missoula, Montana (B. J. Sharkey)

522. BURGESS, Pamela M. The objectivity and reliability of judging filmed routines in women's gymnastics. M. S. in Physical Education, 1971. 45 p. (B. J. Sharkey)

523. DAINTY, David A. The relationship of anaerobic capacity to selected performance tests. M. S. in Physical Education, 1971. 98 p. (B. J. Sharkey)

Efforts to develop and validate a bicycle ergometer test of anaerobic capacity are discussed. While the testing procedure seemed confounded by the practice of breath holding, it did differentiate training effects following a program of progressive interval sprints but did not indicate training effects related to increased quadriceps extension strength.

524. HILDERMAN, Larry. The effects of a progressive resistance exercise program on movement time. M. S. in Physical Education, 1971. 66 p. (B. J. Sharkey)

525. HURLEY, Maryl F. The effects of basic swimming instruction upon self-concept. M. S. in Physical Education, 1971. 111 p. (B. J. Sharkey, J. L. Dayries)

The Tennessee Self-Concept Scale was administered to 28 nonswimmer female Ss before and after a 10-wk. program of basic swimming instruction. A control group of 11 Ss was not enrolled in any physical activity course. The study revealed that Ss with a high initial self-concept did not achieve a higher score on the final swimming skills test, than did those Ss with a low initial self-concept score. Furthermore, there was no change in the total self-concept that could be attributed to instruction in the basic swimming class.

526. McWHORTER, Jack R. The effects of postural preparation training on total body movement time. M. S. in Physical Education, 1971. 63 p. (B. J. Sharkey)

527. MORRIS, Gordon S. The effect of training intensity on perceived and preferred exertion. M. S. in Physical Education, 1971. 72 p. (B. J. Sharkey)

University of New Mexico, Albuquerque, New Mexico (F. McGill)

528. HOLBROOK, Viola R. Attitude and performance in gymnastics of college women physical education majors. Ed. D. in Physical Education, 1970. 84 p. (F. McGill)

A background questionnaire, a pre- and post-gymnastic attitude inventory and a pre- and post-gymnastic skill test measurement was taken on 129 women PE majors at Mankato State College. Students indicated favorable to highly favorable attitudes toward gymnastics. Pregymnastic attitude was related to pregymnastic skill, postgymnastic skill, and postgymnastic attitude. Urban-reared women had a significantly more favorable attitude on the pre- and post-gymnastic attitude inventory and performed significantly better on the pregymnastic skill test, but not on the postgymnastic skill test. Significant relationships were found in postgymnastic attitude and postgymnastic skill for the low attitude level group; pregymnastic skill and postgymnastic skill, pregymnastic attitude and postgymnastic attitude for the middle attitude level group; and pregymnastic attitude and postgymnastic attitude, pregymnastic attitude and pregymnastic skill, pregymnastic skill and postgymnastic skill for the high attitude level group.

State University of New York at Buffalo (C. R. Meyers)

529. BLACK, Ronald. The development and trial administration of an instructional unit for obese students in grades six, seven, eight and nine. Ed. D. in Physical Education, 1970. 139 p. (J. Piscopo)

Thirty obese students in grades 6-9 of a rural-suburban school were administered the instructional unit to ascertain its effectiveness. The criterion of effectiveness was the amount of fat loss between exp. and control groups. ANCOVA of the triceps skinfold measurements revealed that the main effects of treatment and sex were not significant; significant interaction ($p<.05$); the fat loss for exp. boys in the 1-wk. posttest and 20-wk. posttest was significantly greater ($p<.05$) than the control boys, and the fat loss for exp. boys in the 20-wk. posttest was also significantly larger ($p<.05$) than for exp. girls. The instructional unit was effective in reducing body fat. The significant fat loss of the exp. boys when compared to the exp. girls suggests a more favorable response by the boys to the investigator as the instructor.

530. HILL, Richard A. An evaluation of a breath-holding technique for increasing anaerobic capacity. Ed. D. in Physical Education, 1970. 151 p. (C. R. Meyers)

Twenty-two male Ss enrolled in basic instruction PE classes were assigned according to their anaerobic capacities to 1 of 2 treatment groups with similar training protocols for a period of 8 wks. Anaerobic capacities (the blocking variable) were established through treadmill tests, and the 440-yd. dash was used as a field test of same. The conventional group received no special breathing instructions, while the exp. group was oriented in and encouraged to utilize the breath-holding technique. ANOVA disclosed a significant treatment effect ($p<.05$). Block and interaction effects were not significant ($p>.05$). Anaerobic capacity and the 440-yd. dash correlated .43. It was concluded that the breath-holding technique can be effectively used to increase a person's anaerobic capacity: the training protocol can effectively increase a person's physiological state of being and lactate tolerance level; and the 440-yd. dash is not effective as a criterion field test of anaerobic capacity--and a longer distance would appear to be a more appropriate test.

531. MacDONALD, George M. The development of an instrument for determining attitudes toward physical recreation of freshman college men at a selected institution. Ed. D. in Health, Physical Education and Recreation, 1970. 172 p. (C. R. Meyers)

A 30-item summated type attitude scale was developed. The final form of the attitude scale was administered to 2 different classes of fresh. male students at State University College at Buffalo for substantiation of scale reliability and validity. Reliability estimated through the odd-even method and the Spearman-Brown prophecy formula yielded coefficients of .97 (N=222) and .95 (N=290). Concurrent validity was established on the basis of scores on the attitude scale and the external criteria--self-rating scale, personal questionnaire, daily recreational log, and composite standard score. To establish construct validity, 2 constructs were formulated to account for scale performance, and t tests for uncorrelated mean scores disclosed a significant t for each administration ($p<.05$). Within the limitations of this study, it was concluded that the physical recreation attitude scale developed to measure the direction and intensity of attitudes toward physical recreation held by fresh. college men was valid and reliable for the group used; and the attitudes held

toward physical recreation by the group studied between participants and nonparticipants differed significantly, with the participants being favorably disposed.

532. MARSH, Richard L. An investigation of U. S. intercollegiate athletic conference organization and administration with implications for the State University of New York. Ed. D. in Physical Education, 1971. 259 p. (C. R. Meyers)

A sample of 186 institutions comprising 14 conferences was studied through questionnaires, personal interviews, and conference minutes. The faculty representative conference was the most popular. The most frequent problems of institutional autonomy were admissions, recruiting, financial aids, eligibility, public relations, athletic subsidy, and national sports bodies. Conferences functioned to facilitate institutional goals through promulgation of rules, detection of violations, assessment of penalties, and as vehicles for promoting nonathletic endeavors, e.g., consortiums. Recommendations included a State University of New York (SUNY) masterplan for HPER and athletics, establishment of a SUNY Athletic Council, athletic subsidization through the general fund, and restructuring of the SUNY Athletic Conference.

533. MEYERS, Earle J. Effect of selected exercise variables on ligament stability and flexibility of the knee. Ed. D. in Physical Education, 1970. 289 p. (J. Piscopo)

Explored were the effects of selected combinations of rate of movement, resistance, and 2 variations of the deep knee squat on collateral ligament stretch in the knee joint, quadriceps muscle strength measured at 2 leg extension angles, and knee joint flexibility. Sixty-nine male volunteer, Caucasian university students provided the data. The total experiment was 10 weeks in duration; 1 week for pre- and post-testing and 8 weeks for exp. exercises. The main hypotheses involved the nesting of selected treatment cells into planned contrasts. MANCOVA failed to reject the null hypotheses ($p>.05$). Selected variations of the deep squat and half-squat exercises did not produce statistically significant differences in their effects on collateral ligament stretch, quadriceps muscle strength, or knee joint flexibility.

534. WALLINGFORD, Ronald R. Evaluation of application of a computer retrieval system for exercise physiology. Ed. D. in Physical Education, 1970. 134 p. (C. R. Meyers)

This study reviewed the literature relating university instruction to the evolution of the computerized resource unit. The compilation, coding, and setup of the resource unit for computer retrieval was described. The resource unit sections consist of teaching objectives, statements of content, resource materials, activities, and evaluative devices. To evaluate the effectiveness of the computer based resource unit, 5 Canadian universities participated. At each institution conventional instruction was given for the first half of the period and experimental instruction for the second half. After the conventional period, 50-item multiple-choice tests were administered. Resource guides were distributed to instructors and students just before the start of the exp. period. These guides consisted of information processed from the computer relating to the instructional objectives selected by teachers or students. At the end of the exp. period a second multiple-choice test was administered. Hayes Instructor Rating Scales were also administered to students at the end of the conventional and exp. periods. It was found that knowledge achievement was significantly greater ($p<.01$) when students and teachers had access to resource guides. Students rated the quality of instruction slightly higher when instructors had access to resource guides.

North Carolina Central University, Durham, N. C. (R. E. Townes)

535. BENNETT, James O. A study of the difference between the motor ability of black and white ninth grade boys. M.S. in Physical Education, 1971. 48 p. (R. E. Townes)

Ninth grade boys, 50 black and 50 white, were classified according to McCloy's Classification Index and were given the McCloy Motor Ability Test. The black boys, as a group, were significantly faster than the white boys in speed. There was a significant difference between leg power of the 2 groups in favor of the black Ss. No difference between the levels of arm strength of these 2 groups was found. The difference between the groups on the test as a whole was significant ($p<.05$) with the black boys being superior.

536. GOLATT, Moses. General motor ability level of freshman college men before and after a planned program of physical education activities. M.S. in Physical Education, 1971. 51 p. (R. E. Townes)

Forty male freshmen were administered the Barrow Motor Ability Test before a planned program of PE activities consisting of 30 periods of 50-min. length. Comparison of the posttest scores with the pretest scores showed an improvement of each component of motor ability. The greatest improvement was in the motor ability component measuring agility and speed, while the least improvement was in the component measuring power. The difference between the motor ability status of this group before and after a planned program of PE activities was significant ($p<.01$).

537. GRANDY, Joe Louis. A study of the relationship between aggression and attitude toward physical education and selected physical education activities. M.S. in Physical Education, 1971. 62 p. (R. E. Townes)

The Sears Aggression Scale, Adams Scale, and Kappes Attitude Inventory were administered to 92 Ss in the required PE program. Significant correlations were found between the Sears Aggression Scale and the Kappes Attitude Inventory, and the Adams Scale and the Kappes Attitude Inventory ($p<.05$). There was a significant positive relationship between 2 types of aggression and attitude toward selected PE activities. There was no significant relationship between the 3 types of aggression and attitude toward PE as a subject.

538. JOHNSON, Napoleon C. The physical fitness of eighth and ninth grade boys before and after a planned program of physical education. M.S. in Physical Education, 1971. 58 p.

Fifty 8th and 50 9th grade boys were administered the AAHPER Youth Fitness Test before and after a planned program of PE consisting of conditioning exercises, team sports, single and dual sports, and recreational sports. Classes met for 55 min., 5 days a wk. for 2 semesters. Comparison of the initial and final scores of each group revealed an improvement in each component of physical fitness tested. The 8th grade sample scored highest on abdominal strength, speed, and cardiovascular endurance, and lowest on leg power. The 8th grade sample scored above the 50th percentile on the final test, as a group. The 9th grade sample scored highest on speed, agility, flexibility, and cardiovascular endurance, and lowest on arm strength. The 9th grade sample scored at the 90th percentile on the final test, as a group. The difference between the means of the final tests of these 2 groups was significant ($p<.01$).

539. WALL, Gary E. A comparison of academic performance of athletes during the seasons of athletic participation and the seasons of athletic nonparticipation. M.S. in Physical Education, 1971. 55 p. (R. E. Townes)

Athletes (N=100) participating in football, tennis, and track during the period from 1966-1970 were used in this study. The names of the Ss were secured from the files of the athletic director, and the academic performance was secured from the official files of the registrar. The GPAs during the seasons of participation and seasons of nonparticipation were compared. There was no significant difference between the M GPA ($p>.01$). Athletic participation did not have a detrimental effect on the academic performance of the Ss in this study.

University of North Carolina at Greensboro, (G. M. Hennis)
Greensboro, North Carolina

540. ADAMS, Alice. A study to investigate the effectiveness of using a lightweight plastic ball in teaching the overhead volley in volleyball. M.S. in Physical Education, 1971. 48 p. (M. I. Riley)

Beginning volleyball players were divided into an exp. group (N=19) and a control group (N=18). The exp. group used lightweight plastic balls while the control group used regulation volleyballs. There was a significant difference between pre- and post-tests on the wall volley for the control group; however, no change was found for the exp. group. A slight relationship was found between wall volley scores and grip strength; a moderate relationship existed between finger strength and grip strength and between finger strength and wall volley scores. There was no difference between the groups in grip strength after the exp. period nor between the groups on the wall volley test.

541. ALLEY, Jennifer E. The development of muscular endurance in women physical education majors with diverse initial muscular endurance scores. M.S. in Physical Education, 1971. 43 p. (F. Pleasants)

Freshman women (N=27) participated in a 4 wk. conditioning program on the bicycle ergometer. Ss were divided into 3 groups (high, medium, low) based on their initial riding time. ANOVA was used to determine if there were significant differences between M changes in pedaling time of the 3 groups for each wk. For each group t was calculated using the initial pedaling time scores and the 4th wk. M time scores to determine if there were significant changes during the training program. The r coefficients were calculated using initial pedaling time scores and the difference between initial pedaling time scores and M scores of each wk. for the entire group of Ss to see if there were any relationships between the initial and improvement scores for each wk. There were no differences between the groups ($p<.05$) in relation to changes in muscular endurance after 1, 2, 3, and 4 wks. There were no significant r's between initial scores and the M score for each wk.

542. ALSTON, Dorothy Jean. A comparison of motor creativity with verbal creativity and figural creativity of black culturally deprived children. Ed.D., 1971. 143 p. (G. M. Hennis)

Students (26 boys and 24 girls), aged 10-12, were predominantly black, urban, and culturally deprived. The Torrance Tests of Creative Thinking, Verbal Form A and Figural Form A were used to evaluate creative thinking abilities. Motor creativity was evaluated by the Wyrick test. Intercorrelation matrices were computed between all pairings of

variables for the total population, and for boys and girls separately. Stepwise multiple r and regression analyses were done with motor creativity variables as dependent and all other variables as independent for the same groups. The null hypothesis of no difference between Ms of the boys' and girls' groups was tested by multivariate ANOVA, (Alpha .05). Within the limitations of this study the major findings were that motor creativity and verbal creativity batteries assess similar qualities to a fair degree for all groups tested; there is an apparent lack of relationship between verbal and figural creativity for girls; the variables measured by the verbal and figural creativity test batteries can be used to predict motor fluency for girls, and motor creativity for the total population and for the boys; the variables measured by the verbal and figural creativity test batteries can be used to predict motor originality for boys; and the boys and girls did not differ with respect to verbal, figural, and motor creativity.

543. CHASE, Philip E. A survey of the physical education, intramural, interscholastic and recreation programs for delinquent youth confined in the juvenile correction training schools in the State of North Carolina. M.Ed., 1970. 150 p. (P. A. Loeffler)

A questionnaire to obtain facts regarding activity programs was constructed and distributed to each PE instructor employed by the Board of Juvenile Corrections at the 8 juvenile correction schools in N. C. (100% return). Various aspects of the program at each of the training schools were observed and each director was interviewed to obtain additional information. In general, students confined to the training schools receive a broad program of activity with major emphasis on team sports. Individual sports, dance, body conditioning, recreational activities, and games of low organization complete the program. The majority of the training schools had facilities and equipment suitable for a wide variety of PE activities. Programs appeared to have administrative support and were led by competent and professionally qualified instructors.

544. CONNOLLY, Maureen L. A comparison of the effect of body build on selected tests of arm strength among college women. M. S. in Physical Education, 1971. 167 p. (G. M. Hennis)

In examining the performance of college women of 3 different body builds on selected tests of arm strength, 14 cable tensiometer arm and shoulder girdle strength tests served as the criterion measure. The 3 arm strength measures were the flexed arm hang, modified pull-ups, and modified push-ups. Ss were 43 women students aged 18-20 yrs., who were enrolled in 11 recreational sports classes at UNC-G, chosen from 105 volunteers. Ht. ranged from 62.5 to 65.5 ins. Ss were divided into 3 body build groups--slender, average, and heavy--determined by their weight and ponderal index. The 3 arm strength measures were ordered in a Latin square design and administered at 2-day intervals. ANOVA (Alpha .05), Latin square ANOVA, Pearson product-moment r and the Scheffe test showed that persons of different body builds perform differently on 4 selected measures of arm strength--total cable tensiometer strength, flexed arm hang, modified pull-ups and push-ups; the performance on flexed arm hang, modified pull-ups and push-ups does not differ within the average or heavy build, but the pull-ups did differ within the slender build; and the only arm strength measure significantly related to total cable tensiometer strength is the flexed arm hang for the average build.

545. DIX, Karen R. A cinematographic analysis of the crouch start as performed by a woman sprinter. M. S. in Physical Education, 1971. 64 p. (F. Pleasants)

The fastest and slowest of 12 filmed crouch starts by a woman sprinter were determined by counting the number of frames required for each start. Angle measurements of the elbows, knees, legs at the hip, head at the trunk, and the trunk with the horizontal were obtained and the average angular velocities computed for every third frame at each of the angles. The analyses of the 2 starts revealed a high head position in the slowest start as compared to the fastest sequence in which the head was kept low and in line with the trunk. The runner maintained a lower body position after the first stride in the fastest start and moved into this position sooner. The body position in the slowest sequence was more upright throughout the run and paralleled the high head position. The length of the first stride out of the blocks was longer in the fastest start and was executed with a greater velocity. The velocity and distance of the second stride out of the blocks was also greater in the fastest start. The average velocity of the left arm was greater in the fastest start and appears to have been driving much harder. The average right arm velocities were the same for both starts.

546. FARROW, Andrea C. Skill and knowledge proficiencies for selected activities in the required program at Memphis State University. Ed. D., 1970. 320 p. (R. McGee)

Objective knowledge tests, using a multiple-choice format, were developed in each of 5 activities--archery, badminton, bowling, golf, and tennis. Test questions for the final forms of the examinations had indices of discrimination of .20 or above and difficulty ratings between 10% and 90%. The content and emphasis of each test were based on content balance inventories completed by the instructors for each activity. Reliability rs, calculated by a Kuder-Richardson formula, ranged from .85 to .91. Objective skill measures were made in each activity with reliability of $\underline{r}$ =.80 or above considered acceptable, as was a validity $\underline{r}$ =.70 or above. The following were found to be reliable and valid measures for the respective activities: the archery skill measure (4 ends from 10 yds. and 4 ends from 20 yds.), badminton batteries consisting of the clear test and either the bounce or footwork test, and tennis batteries consisting of the Wisconsin Serve Test and either the Broer-Miller or Timmer test. Data from the bowling measure indicated that 6 games were not sufficient to yield a reliable score but that 9 games would probably give a reliable score. A cursory examination of the golf data (based upon scores made on an 18-hole par 3 course) indicated the scores were not reliable so the skill measure for golf was dropped from further consideration.

547. FETTERS, Janis Lynn. The effect of two different approaches to gymnastics free-exercise on body-image concept and movement concept. M. S. in Physical Education, 1970. 163 p. (C. Ulrich)

Teaching optional routines by the problem-solving approach and teaching a compulsory routine by the demonstration-explanation approach were used for 30 college women enrolled in 2 sections of beginning gymnastics. The Q-sort technique was utilized to record and score 75 body-image concept statements and 75 movement concept statements devised by Doudlah. The tests were administered prior to and after 7 wks. of instruction. ANCOVA $\underline{t}$ indicated the following: no difference within or between classes with regard to body-image concept or movement concept prior to or following instruction; a significant difference between initial and final self-sorts and between initial and final ideal-sorts of both body-image concept and movement concept within both classes; no difference between classes with regard to change in self-sort or ideal-sort of body-image concept and movement concept; no difference between classes with regard to final competencies in free exercise routine performance.

548. GAILUS, Janet E. Alienation and self-concept of male high school basketball players. M.S. in Physical Education, 1971. 117 p. (C. Ulrich)

The effect of regular or substitute player status, as determined by basketball playing time, on self-concept and feelings of alienation of 27 male SHS basketball players was investigated. The relationship between alienation and self-concept was also explored. The instrument employed to measure alienation was Dwight Deason's Alienation Scale which evaluates powerlessness, normlessness, and social isolation. Doudlah's 75 self-concept statements, utilizing the Q-sort technique, were administered. On the basis of the statistical results it was found that a large discrepancy between real-self and ideal-self tended to be related to high alienation scores and small discrepancy tended to be related to low alienation. The study revealed comparable effects of substitute and regular player status on self-concept and feelings of alienation of male high school basketball players.

549. GALLOWAY, June P. A conceptual approach for determining patterns of professional preparation for women in health and physical education. Ed.D., 1969. 135 p. (R. McGee)

A theoretical model of a conceptual approach to undergraduate professional preparation for women in health and physical education was developed. Much of the theoretical model was planned by the writer as a suggested pattern of approach. An attempt was made to group specific concepts relative to professional preparation programs around a common generalized concept of the profession itself: human movement. The model was presented in an artistic form showing a hierarchy of concepts in a symbolic way. It identified the PE process inherent in the concept of human movement. It is characterized by flexibility, versatility, completeness, and interrelatedness. The model itself should communicate movement, the wholeness of the individual, the spiraling and related concepts relative to movement as the necessary ingredients that an undergraduate student should possess, how these might be obtained, and the levels of progression stressing individualized and continuing professional preparation. Specific examples were cited showing use of the model in the development of a course and, in reverse, to review a course in light of the model to ascertain whether or not the course was relative to the basic concepts. Ways in which the suggested conceptual approach could be evaluated and implemented were discussed.

550. HARRIS, Elizabeth C. A study of personal distance ratings among college students enrolled in four physical activity classes: Bowling, conditioning, folk dance and volleyball. 1971. 153 p. (C. Ulrich)

Three administrations of the Cowell Personal Distance Ballot were scheduled at equal time intervals during the semester and administered to selected PE classes. To further study intervening variables, class behavior was observed in terms of teacher and student verbal interaction. A questionnaire was administered to investigate whether relationships formed outside the specific physical activity class related to personal distance responses. Other behavioral indices consisted of teacher course objectives, teacher personal distance ratings and skill grades. ANOVA was used to determine possible differences attributable to the variables of group size, teachers, diurnal factor and the 2 treatments of personal distance tests. Significant differences in personal distance among the Ss in different activity classes were found. Group size and teachers also made a difference. Data also suggested that A skilled Ss differed from B or C skilled Ss in terms of personal distance.

551. HILL, Henry Lewis, III. A cinematographical comparison of selected mechanical factors associated with vertical jumping height. M. Ed., 1970. 45 p. (F. Pleasants)
A comparison was made of a college varsity basketball player's best and poorest jump of 7 according to the vetical ht. obtained on each jump. Angle measurements of the ankle, knee, hip, shoulder, and elbow joints and of body lean were obtained; velocities of the hip, knee, and arm movements were computed; and a sequential analysis was made of Phases I-IV of the jump. The following conclusions relative to performance of the vertical jump seem warranted. while the best jump showed the greatest overall arm velocity, the poorest jump had the greatest hip and leg velocity in all 3 phases of the jump; the crucial difference in ht. of jumping seems to have been effective use of the arms; position of the arms throughout the jump affected the jumping ht.; the arm should be in as nearly vertical a position as possible to attain the greatest ht. Excessive curvature of the body (at ankle, knee, hip, shoulder, and elbow) seemed to decrease jumping ht. in the poorest jump.

552. HOPKINS, Judith A. Reveries of these women. M. F. A. in Dance, 1970. 42 p. (V. Moomaw)
"Reveries of these Women" is a dance composition performed in 5 sections. The atmosphere created by the dance is in a folk flavor and within each section associated feelings of all womankind are perceived. The dynamics of movement presented give the dance a certain spirit, and by means of contrasting movement qualities, shades of expression are communicated.

553. HUBBARD, Nancy G. The development and use of tape recordings as motivation for older youths toward concept learning in health education. M. Ed., 1971. 198 p. (M. K. Solleder)
Concepts of this study were selected from the School Health Education Study's Health Education: A Conceptual Approach in Curriculum Design. The tapes and accompanying materials were developed, used and evaluated as a motivational medium with SHS and fresh. college youth to encourage understanding and an appreciation of effective health behavior. Written comments by the students gave evidence that a majority showed progress towards this understanding and appreciation, and had knowledge and comprehension of the health concepts and subconcepts presented. The writer found that audio media, integrated into the design of a concept approach, can be developed and used effectively to motivate greater comprehension and appreciation of selected attitudes and health behavior in the topical areas of mood-modifying substances, growth and development, nutrition, and family life. Tape recordings can conveniently bring the "live" experiences of others into the classroom and provide meaningful, stimulating illustrations, pertinent to particular needs and problems of youth.

554. HUNSBERGER, Elizabeth H. The study of the self-concept of church, college, and state university athletes and nonathletes. M. S. in Physical Education, 1971. 83 p. (C. Ulrich)
The possible effect of intercollegiate basketball participation on the real-ideal self-concept congruency of fresh. and soph. women from Mennonite colleges and state institutions of higher education was investigated. Doudlah's Q-sort statements were used to test the real-ideal congruency of each S prior to and after a regularly scheduled basketball season. A 3-way ANOVA showed a significant difference between pre and post real-ideal correlation for the total group. No differences were found between athletes and nonathletes nor between Mennonites and non-Mennonites. The fact that there was an increase in the real-ideal congruency of all Ss suggests that participation on a basketball team either

did not sponsor change or was only one of possible factors influencing this change.

555. LEATHEM, Jocelyn. The development of a values inventory for high school girls to measure selected psychological, sociological and spiritual values as related to physical education. M.S. in Physical Education, 1970. 173 p. (G. M. Hennis)

Five-choice multiple-choice items (N=112) were created for the following values: psychological (honesty-trustworthiness, responsibility, self-control, self-discipline, self-appraisal); sociological (sportsmanship-fairplay, cooperation, leadership, followership, and respect-acceptance of others); spiritual (aesthetic-appreciation of beauty and happiness-enjoyment of activities). Item validity was determined by 5 judges who categorized the items according to the value represented and the negative to positive order of responses. Analysis of the 44-item inventory was based upon data from 2 administrations to 293 SHS girls in the Boston area. The Likert technique was used to score the Ss' responses and the raw score formula for Pearson's r was used to determine reliability for each inventory item as well as for the total inventory. The range of item reliabilities was .20 to .74. Reliability for the total inventory was .74. A 30-item revised values inventory (r =.74) was created by eliminating 14 items with low reliabilities. The balance of items for each value area was maintained.

556. McCALL, Judith Dubonn. The effectiveness of movement education through a rhythmic structured program offered to trainable mentally retarded children--a case study approach. M. Ed., 1970. 156 p. (C. Ulrich)

Children (N=12) enrolled at the Blue Grass School for Retarded in Lexington, Ky., were rated on the walk, hop, and jump. A rating scale was designed and used in an attempt to objectify the ratings of the performance of each S. Pre- and post-test scores, formulated from the ratings of performance, were analyzed using t. Results of the mechanical analysis of the walk indicated that a change in performance did occur; however, no change was noted in the jump and hop. The results suggest that a program such as that used in this study could benefit the trainable mentally retarded by helping him to understand more about his body and how his body moves, as well as to help the individual to be better able to perform in basic movement patterns.

557. MESENBRINK, Robberta. The interrelationship of the creative process and the creative personality with physical education activities and methodology. Ed. D., 1971. 106 p. (C. Ulrich)

In exploring the premise that the creative process can be developed and the creative personality of each student enhanced through physical education programs which are selected as to kind and conducted as to outcome, Gowin's system of philosophic inquiry was utilized. Hypotheses were developed concerning the phenomenon of creativity, the process involved in creative enterprise, and the personality conducive to creativity. The teaching-learning environment was studied in terms of its contribution to the development of creative potential. Activities presented in a PE program and a methodological scheme which advocated the presentation of those activities were studied. Concepts which emerged as the product of tenable hypotheses suggested that creativity and the creative enterprise could be fostered through PE programs. Major factors involved in the development of creativity appeared to be the teacher personality as it pertained to the structuring of the teaching-learning environment and the interrelationships of the teacher's personality and the chosen methodology. To illustrate the interaction of PE on creativity with their attendant facets, a model was constructed in the

form of a mobile which suggested the attitudes of each component upon the others. There seemed evidence to substantiate the concept that PE programs selected as to kind and conducted with sensitivity could make a contribution to the development of creativity.

558. MILLER, Earlynn Joy. Sculptolinear knitinuum: A theater art piece. Ed. D., 1969. 76 p. (V. Moomaw)

The dissertation was a performance of a theater art piece recorded on 16mm film, supported by a written documentation which was a development and validation of the directing artist's personal experiences resulting from the choreographing and production of the dance. Some of the sculptural aspects of the human body and the human body in combination with others were explored as stimuli for the choreographed motion and design. A particular group of sculptural objects was used at different times in the theater piece as sets, props, costumes, or a combination of these to change the shape of the human body; restrict and augment the possibilities of motion; delineate space in ways not possible with the human body alone or in a group; and connect, relate, and isolate the performers in their relationship to one another and to the sculptural forms. The integration of the theater elements of color, sound, light, time, shape, space, and motion into a visual and auditory continuum made up the statement which is this work. The piece was presented as a kinetic continuum of sculptural form and linear statement.

559. MOORE, Judith A. An instructional manual for high school and beginning curling. M.S. in Physical Education, 1971. 100 p. (C. Ulrich)

The manual includes skill descriptions, basic strategies, conditioning activities, bonzpiel structures, the rules, etiquette and teaching techniques. Instructional procedures are suggested.

560. NOLE, Barbara J. A study of racial identification of instructors as related to the self-concept and skill performance of students. M.S. in Physical Education, 1970. 84 p. (C. Ulrich)

Ss were 20 Caucasian college fresh. women and 14 Negro fresh. college women enrolled in predominantly white and Negro institutions respectively. None of the Ss knew the purpose of the study. Es were 1 Caucasian female and 1 Negro female who were unfamiliar with the Ss. Rogers' battery of 75 statements as administered by Doudlah using Q-sort methodology was the determinant of self-concept. The standing broad jump and the shuttle run were used as measures of skill performance. Results of statistical analyses revealed that neither group of Ss differed significantly in their self-concept responses or their skill performance with either the Negro or Caucasian instructor. The self-concept test did not relate significantly to the performance of the skill tests administered by either the Caucasian or Negro instructor.

561. NUGENT, Jane E. A comparison of attitude change toward physical education in classes taught with different emphases. M.S. in Physical Education, 1970. 106 p. (C. Ulrich)

Ss were taught the skills and knowledges of beginning yoga in classes which differed with respect to presence or absence of planned discussion as a part of each session. Kenyon's 6 scales for Assessing Attitude Toward PE Activity: Form D--College Women was used as the testing instrument. The study lasted 5 wks., 2 classes per wk. with 16 college women in each class. During the final 10 mins. of every class for the exp. group an attempt was made to emphasize positive values of PE through discussion techniques. Following the posttest with the attitude inventory, both groups received a teacher-constructed, multiple-choice test based on skills and concepts. A 2x2 factorial ANOVA showed no

significant differences between group scores, within-group scores, or between treatments on a pre- and post-test basis ($p>.05$). Inclusion or exclusion of the discussion period seemed to have no bearing on attitude scores. Based upon t, there was no difference between the groups with respect to knowledge understandings.

562. PALMER, Jacqueline. Sport as a vehicle of social mobility for the black athlete in twentieth century America. M. S. in Physical Education, 1971. 87 p. (E. C. Umstead)

Sport has been viewed as a cultural manifestation, as a platform for racial protest, and as a vehicle for the black man living in a white man's establishment. Sociological considerations have been reviewed relating to the status of the Negro in America, the analysis of the conceptual complexity of social mobility, and the reasons why sport has been sought by blacks as a resource against social denial. Although prejudice and exploitation are evident in the athletic world, it is concluded that sport affords the Negro one of the greatest opportunities for social, cultural, and economic recognition in America. The sporting ritual is characterized by ethical principles which promote harmony in human relationships and it is one of the more positive and responsive mechanisms of integration operating in society today. Sport has promising potential for contributing toward desegregation in many aspects of American life.

563. PERIDIER, Pamela S. Mechanical principles and retention of the elementary back stroke. M. S. in Physical Education, 1970. 51 p. (J. D. Lawther)

Male and female college students (N=35) enrolled in 2 beginning swimming classes were taught ele. water skills before the study began. Then both classes were taught the ele. back stroke, with the exp. group taught the mechanical principles applicable to the stroke. Rosentswieg's Revision of the Power Test was given $3\frac{1}{2}$ wks. after instruction on the stroke began and again 6 wks. later, after a period of no practice. ANCOVA and t showed the teaching of mechanical principles did not affect any changes differently from those occurring with the group that received no instruction in the principles. Both groups retained the skill equally well. There was no difference in the fluctuation within the group from the 1st and 2nd test.

564. SMITH, Jacqueline A. The construction of a self-instructional program of field hockey rules for beginning players on the college level. M. Ed., 1970. 127 p. (M. Riley)

Material for program content was determined and classified into 12 rule sections. Behavioral objectives for each rules section were formulated from predetermined material for program content. An objective test was constructed for use as a postprogram evaluation of knowledge relating to program content. Frame testing by 3 Ss was conducted to determine needed revisions of the program. A pilot study using 10 Ss was conducted to provide information on program validity and any further needed revisions. An evaluation of the program was requested from each S. The standard advocated by the AIR was used as criterion for program evaluation.

565. TAYLOR, Margaret Joy. A historical study of the Women's Intercollegiate Athletic Union Canada. M. S. in Physical Education, 1971. 324 p. (C. Ulrich)

Comparisons were made between the original and present day organizations with reference to the following factors: purpose, function and structure, program, and standards. The study was divided into 3 periods: 1921-1945 Birth; 1946-59 Development; and 1960-1970 Maturity. Primary sources were minutes and proceedings of meetings,

reports, papers, constitutions, bylaws, sport rules and regulations, correspondence, and interviews with members involved directly and indirectly with the WIAU from 1920 to 1970.

566. TAYLOR, Sharon E. A study of the effect of sweeping on the distance and direction of a moving curling stone. M.S. in Physical Education, 1971. 50 p. (F. Pleasants)

Ss for the study were 3 prs. of experienced curlers. Three curling stones (as nearly alike in physical characteristics and wt. as possible) were used for the experiment. Each stone was used in a total of 90 trials. For the 45 odd-numbered trials the stones were swept, and for the 45 even-numbered trials they were permitted to run unaffected. After each trial, linear distance and lateral deviation for each stone were measured and recorded. A 10-ft. aluminum roller conveyor, supported on one end 27 ins. above the ice surface with the other end resting on the ice, gave constant impetus to the stones. A ramp, constructed of slush and allowed to freeze, permitted smooth transition from the conveyor to the ice. Torque was applied by a curling broom fixed at the foot of the ice ramp. Evidence from analysis of data indicated that sweeping caused a moving stone to achieve a greater linear distance than it would normally and that sweeping reduced the degree of lateral deviation caused by the curling action of the stone. Sweeping also altered the condition of the ice surface. The degree of modification of linear distance and lateral deviation were greater in the later trials.

567. TURNBULL, Anne C. A coaching manual for women's competitive basketball: A guide for the new coach of the five-player game. M.Ed., 1971. 203 p. (M. Riley)

Basic strategy progression for the 5-player game and the administration of a competitive basketball program were stressed. The manual was developed in 2 stages--development of a manual outline and creation of the manual itself. A jury of 4 basketball authorities, selected for expertise in both the 5-player and 6-player women's games and for geographical location to incorporate Canada and the U.S., evaluated both outline and manual. The manual was developed from the outline revised according to the jury recommendations. Minor changes, suggested by the jury, were also incorporated in the final draft of the manual.

568. VANDERSTOK, Annie A. A study of the effect of selected biological, psychological, and sociological factors on the learning rate of the Negro male swimmers. Ed.D., 1970. 138 p. (C. Ulrich)

During a 5-wk. instruction period, taught according to the ARC Instructor's Manual, the following measures were taken on 37 Negro male students: Biological--floating ability (turtle-prone float combination); Psychological--the IPAT-8-Parallel Form Anxiety Battery Forms A, B, and D plus observable fear rating on a 1-10 scale; Sociological--swimming background questionnaire, family background data, and an evaluation of S's reaction to the 5-wk. course. Level of aspiration was stated by S initially as well as before each performance test. The rate of learning was measured at the end of the 3rd, 4th, and 5th wks. by measuring the no. of ft. the S could swim the front crawl. ANOVA, a 12x12 r matrix, and a descriptive analysis of sociological factors showed floating ability and anxiety did not have an appreciable influence on S's learning rate. Fear was found to be an important factor, and as fear diminished, performance improved. Level of aspiration was a reliable indicator of future success in swimming the front crawl. Previous experience, preference and practice seemed to be dominant traits in the group of fast learners. Parents' education, family's ability to swim, size of family, and encouragement received did not present a consistent pattern.

569. WALKER, Diane G. The effects of competitive swimming on selected physiological measures and performance of seven- to ten-year-old girls. M. S. in Physical Education, 1970. 116 p. (R. McGee)

Seven 7- to 10-yr.-old girls, members of the Green Valley Swim Team of Greensboro, N. C., volunteered as Ss. Blood pressure, PR, respiration rate, and grip strength were taken before and after swimming at 4 levels of competition: at practice sessions, at league meet races, at time trials for the Community Swim Assoc. City Meet, and at the City Meet. Not all Ss were measured in all 4 situations. Based on the limited amount of data collected, the following points seem justified: Physiological measurements taken after all 4 situations increased over measurements taken before each situation (SBP, PR, and respiration rate). Grip strength decreased after each of the 4 situations. Measurements taken before and after each of the 4 situations were a little higher at each level of increased competition.

570. WARD, Dianne Stanton. A comparison of two teaching methods in beginning golf: Expository versus guided discovery. M. S. in Physical Education, 1970. 79 p. (P. Loeffler and G. Hennis)

College women (N=60) enrolled in 4 classes of beginning golf were divided to form the expository group and the guided discovery group. A 15-wk. unit (50 min. each day, 2 days per wk.) was constructed using the swing theory as described by Hicks and Griffin. At the end of the unit Ss were evaluated by means of the Porter-Gaskin 5-iron full swing skill test and an 18-hole course play. The course play favored the guided discovery group ($p>.05$). The skill test results indicated $p<.05$.

571. WEED, Laurice E. Architectonic. M. F. A. in Dance, 1970. 78 p. (V. Moomaw)

The choreography in each of the sections of the dance related to one or more of the 4 elements used in the design of every building: materials, style, light, and space. The basic design of the costumes for each section correlated respectively to the column, arch, and steel skeleton which are architectural examples of the Greek, Renaissance, and Modern periods. "Architectonic" is accompanied by "Symphonie Breve" composed by Maurice J. Weed. A consideration of texture and structural properties of the element of materials stimulated the movement of section I. Style and light were the basic elements in section II. An aluminum structure similar to a steel building frame dominated the stage in section III. In this section body and spatial designs were emphasized.

572. WILLIFORD, Edna Wolfe. The development of an indoor putting test. M. S. in Physical Education, 1970. 75 p. (R. McGee)

Beginning golfers (N=171) participated in this study. An indoor green (12x15 ft.) was designed, constructed from styrofoam, covered with an indoor-outdoor carpet, and marked and cut for 5 regulation holes. The indoor test as developed consisted of putting and scoring 1 ball on the 5-hole indoor green. Four administrations, or 20 holes, were scored. One administration of the outdoor putting test consisted of putting and scoring 9 holes on an outdoor practice green. A minimum of 2 administrations was requested. Game play putts were recorded during regulation play over a period of 4 to 6 wks. Calculations to establish validity were based on ratios derived by dividing the number of putting strokes by the number of holes played. Indoor putting test rs varied from .23 to .74. The rs for the outdoor test were .24 to .69; .26 was obtained between indoor and playing score putting ratios, and between outdoor and playing score putting ratios; .32 was obtained between indoor and outdoor putting test ratios.

573. WILSON, Verna Jean. A comparison of selected personality traits of college women who participate in varsity team sports, varsity individual sports, and a college dance company. M. S. in Physical Education, 1971. 82 p. (R. McGee)
Female students (N=78) completed a personal data sheet and the Cattell 16 PF. ANOVA and t found a fairly similar distribution of personality traits for the 6 groups tested. Only 10 of 140 factors showed significance ($p<.05$). The 6 groups were similar to Cattell's normative group on 70% of the personality traits tested. There were 35 significant differences out of a possible 120.

North Texas State University, Denton, Texas (J. E. Douthitt)

574. BARTEE, Horace H. An investigation of simple reaction time and movement time of the dominant and nondominant arm of elementary school children. M. S. in Physical Education, 1971. 50 p. (J. E. Douthitt)
The 192 Ss were placed in 4 groups according to age, with 48 Ss in each group from age 8 to 11 yrs. The testing apparatus was designed to measure RT and MT during performance of arm extension. Each S was given 8 trials with the dominant and nondominant arms. The scores for 11-yr.-olds were better ($p<.05$) in MT and RT than the scores for each of the other groups. At each age Ss performed better ($p<.05$) with the dominant arm than with the nondominant in speed of movement, but there were no significant differences between the arms in reaction time. The r between RT and MT, though significant for 2 of the 4 ages, was relatively low.

575. BEDFORD, Jane A. The relationship of body cathexis and motor performance in junior high school girls of three ethnic groups. M. S. in Physical Education, 1971. 66 p. (I. Caton)
The Secord-Jourard Body Cathexis Scale and the Scott Motor Ability Test were administered to 117 JHS girls. Scores were organized in such a manner as to investigate differences between scores for Negro, white, and Mexican-American girls and between scores for 7th, 8th, and 9th grade girls. The r was also computed to determine the relationship between body carthexis and motor performance. Analysis of data revealed no significant r between body cathexis and motor performance and no significant differences among ethnic groups and grade levels in body cathexis. In motor ability performance, Negroes were superior to whites and Mexican-Americans, and 9th and 8th grade Ss were superior to 7th grade Ss.

576. COBB, Carolyn K. A comparison of attitudes of parents of sixth grade children toward elementary physical education and elementary athletic competition. M. S. in Physical Education, 1971. 48 p. (I. Caton)
The Bowman Parent Attitude Inventory for measuring attitude toward PE and the Scott Attitude Scale for measuring attitude toward elementary athletic competition were completed by 380 parents. Data were organized in such a manner that comparisons could be made between mothers of daughters, mothers of sons, fathers of daughters, and fathers of sons. The attitudes were positive in each case and analysis of data revealed a significant difference between scores for only 2 groups: attitudes of mothers of sons were significantly different from those of mothers of daughters.

577. FULTON, E. Ed. The effect of dietary supplements of protein and wheat germ oil on selected physical measurements of junior high school athletes. M. S. in Physical Education, 1971. 56 p. (J. E. Douthitt)

Weight, arm strength, speed, and endurance measures were taken on 36 JHS athletes both before and after a 12-wk. period of taking protein and wheat germ oil supplements. Urinalyses were taken once each week during the exp. period. Ss were divided by random procedure into 3 groups. One group took supplements, 1 group took a placebo daily, and a 3rd group only participated in the testing. Pull-ups were used to measure arm strength, speed was measured by times in a 60-yd. dash, and endurance by a 1-min. squat thrust. Analysis of data revealed that there were no differences that were significant between pre- and post-tests for any of the measures. Urinalyses for urea nitrogen estimation seemed to indicate that Ss taking the supplements were utilizing the excess protein.

578. PRUNER, Sherry W. The effects of three methods of practice on improving the performance of a modified free-throw by sixth grade girls. M. S. in Physical Education, 1971. 40 p. (I. Caton)

Ele. school girls (N=43) practiced at shooting modified free throws under one of 3 practice conditions for 20 sessions. One group alternated mental practice with physical practice, a 2nd group alternated physical practice with periods of rest, and a 3rd group participated in only physical practice. All Ss performed on pre- and post-tests involving modified free throws. Analysis of data revealed that each group improved significantly but differences among posttest scores were not significant.

University of Northern Colorado, Greeley, Colorado (A. Phillips)

579. BLAIR, M. Suzanne and KIZER, David L. An assessment of expressed attitudes toward physical activity among high school athletes and coaches in specific sports from two geographic areas. Ed. D. in HPER, 1971. 164 p. (G. H. Sage)

Kenyon's attitude inventory (ATPA), which characterizes physical activity as a social experience, for health and fitness, as the pursuit of vertigo, as an aesthetic experience, as catharsis, and as an ascetic experience, was administered to 468 Michigan male athletes, 552 Texas male athletes, and 75 coaches. ANOVA and t analyses were performed on the athletes and coaches representing the 6 sports common to both Mich. and Tex.: football, basketball, baseball, track, golf, and tennis. It was concluded that male SHS athletes and SHS coaches differentiate between the 6 dimensions of ATPA; Mich. HS sport groups and coaches of sport groups differentiate between but not within the 6 dimensions of ATPA; and athletes in the same sports from both states are much more alike than different in their attitudes toward the 6 dimensions of physical activity.

580. HORNAK, James E. The effects of three methods of teaching on the learning of a motor skill. Ed. D. in HPER, 1971. 146 p. (D. A. Phillips)

Male college students (N=71) were separated into 3 groups and given varied verbal emphases on speed and/or accuracy in learning a gross motor skill, the straight instep kick in soccer. Each group received 3, 6-day periods of instruction and testing. One group received speed emphasis, accuracy emphasis, and simultaneous emphasis on both components (Method I). Another group received accuracy emphasis, speed emphasis, and simultaneous emphasis, respectively (Method II). A third group received simultaneous emphasis on speed and accuracy throughout the

experiment (Method III). Criterion variables were speed and accuracy of the straight instep kick developed as a result of the specific treatments as measured by high-speed film in a Beaulieu R16 movie camera. ANOVA was utilized to test for significant differences between groups and the ANOVA repeated measures technique was used to test for significance within each group from 1 period to another. Initial emphasis caused significant differences in learning as measured by performance in speed and accuracy. Changes in verbal emphasis caused significant differences within groups. There were no significant differences at the end of the exp. in Methods I and III, but both were superior to Method II.

581. MUSGROVE, Dolores Maria. A factor analytic study of perceptual motor attributes as measured by selected test batteries. Ed. D. in HPER, 1970. 64 p. (N. Van Anne)

First and second grade level public school children (N=80) were scored on the 28 test items of The Perceptual-Motor Attributes of Mentally Retarded Children and Youth battery by Cratty and The Purdue Perceptual-Motor Survey by Roach and Kephart. Ten factors were extracted and identified according to factor loadings for each test item. It was possible to name these factors: visual tracking, visual discrimination and copying of forms, visual discrimination and copying of motor patterns, and gross agility. The Purdue Survey accounted for the majority of the common variance. The study indicated that the individual test items are very specific in nature and measure very specific perceptual motor acts.

Ohio State University, Columbus, Ohio (D. K. Mathews)

582. CASE, Howard S. Detraining following two frequencies of high volume interval training. Ph. D. in Physical Education, 1971. 89 p. (D. K. Mathews)

The variables measured were maximum oxygen consumption, maximum ventilation, maximum exercise HR, maximum anaerobic power, physical work capacity, resting systolic intervals, and blood lactic acid concentration. Two way ANOVA revealed the previous frequency of training had no effect on the detraining process. The effect of training as measured by maximal oxygen consumption was lost within 12 wks. after cessation of training.

583. DOE, Robert D. The metabolic effects of a seven-week aerobic interval training program. Ph. D. in Physical Education, 1971. 35 p. (D. K. Mathews)

Maximal oxygen consumption, oxygen debt, lactic acid production, HR, and work output were measured on 4 male Ss. Oxygen debt repayment occurred more rapidly following training. HRs were lower and recovery more rapid for identical work loads.

584. GIASER, Roger M. Metabolism of exercised and cold stressed mice during and following hypoxia and hyperoxia. Ph. D. in Physical Education, 1971. 152 p. (H. S. Weiss)

Maximal $\dot{V}O_2$ for mice swimming in 36 C water was 131.2 ml/kg/min compared to 124.7 ml/kg/min for immobilized mice submerged to the neck in 28 C water. Mice acclimated to 12% O_2 for 3 wk. showed significantly higher $\dot{V}O_2$ exercising in 12% O_2 than air control mice. Those exposed to 75% O_2 for the same time period had significantly lower $\dot{V}O_2$ exercising in 21% and 12% O_2. However, they were no different than air control mice in 100% O_2, indicating a possible adaptation to hyperoxia.

585. HARGER, Bruce Sherwood. The physiological responses of untrained college men to two frequencies of high volume interval train[illegible]. Ph. D., 1971. 97 p. (R. L. Bartels)
The physiological and performance changes for untrained men were similar for 2 training frequencies. High volume training 4 times weekly produced an excessive amount of physical trauma.

586. HOLLERING, Bruce Lynn. Metabolic energy sources as affected by a seven-week program of interval training. Ph. D. in Physical Education, 1971. 126 p. (R. L. Bartels and E. L. Fox)
Metabolic energy sources of 4 men (23-34 yrs.) were investigated before and after 7 wks. of high-intensity interval training (30-sec. treadmill runs alternated with 45-sec. rest intervals). Other variables under investigation were maximal aerobic power, HRs, and PWC. Analysis of pre- and post-training treadmill test runs indicated the training program was successful in promoting positive metabolic, cardiorespiratory, and work performance alterations with a minimum expenditure of the Ss' time.

587. LOOVIS, E. Michael. Status of physical education for the mentally retarded in the state of Ohio. M. A. in Physical Education, 1971. 109 p. (W. F. Ersing)
A survey of 42 city directors of physical education, to which 31 (73.8%) responded, showed that the educable mentally retarded students in the public school systems of Ohio were receiving the same amount of PE both in terms of number and duration of classes as the "normal" students. Additionally, a survey of the 88 county programs of mental retardation and 10 ancillary institutions for the retarded, to which 65 (66.3%) responded, revealed that 80% of the county programs and institutions provided physical or quasi-physical education classes for the trainable mentally retarded students in their schools.

588. ROHALY, Kathleen A. The relationships between movement participation, movement satisfaction, self-actualization, and trait anxiety in selected college freshman women. Ph. D. in Physical Education, 1971. 170 p. (L. A. Hess)
Volunteer Ss (N=143) completed a movement participation index, Movement Satisfaction Scale, Personal Orientation Inventory, and A-trait scale of the State-Trait Anxiety Inventory. No strong relationships were evidenced. The discriminant analyses yielded significant differences in self-actualization between categorized groups in movement satisfaction and trait anxiety, but not movement participation.

589. VAUGHAN, Linda Kent. An exploratory of risk for the identification of the elements of risk in sport. Ph. D. in Physical Education, 1971. 140 p. (M. Mordy)
The concept of risk was examined and 2 elements were identified as danger and uncertainty. For purposes of potential identification of the elements of risk in sport, the 2 elements were presented as a theoretical construct and questions were formulated for application according to 3 perspectives and forms of sport.

Ohio University, Athens, Ohio (W. G. Stewart)

590. RANSON, Rolland G. T. A technique analysis of Scandinavian and Russian world class javelin throwers. M. S. in Physical Education, 1971. 140 p. (W. G. Stewart)
A historical overview of this event from the neolithic era to the present, and a section on training methods of the British, Americans, Russians,

Finns (including weighted ball training) were presented as requisite precursors of correct technique. Technique analysis began with a review of the literature, from 1923, and was examined under these headings: types of footwork; the approach, grip, carry, run-up; transition to throwing position; throwing position; transition to the release; the release; follow-through. Photo sequences of Kinnunen, Nevala, Pedersen, Lusis were included. Physiological and biomechanical concepts were then applied to the javelin throwing position under the following headings: application of speed, force; placing muscles on stretch; angle of pull; range of movement; rhythmical sequential pattern of contraction; musculoskeletal machines and multiple leverage system; muscular analysis; javelin aerodynamics. The presentation of correct technique and training concepts based on scientific principles was the result. A secondary result was alleviation of some misconceptions and synthesis of authorities' opinions.

University of Oklahoma, Norman, Oklahoma (T. E. Gabert)

591. CARLSON, Gregory A. The offensive play-calling responsibility of the college quarterback: A college football survey. M. Ed. in Physical Education, 1971. 36 p. (T. E. Gabert)

NCAA schools, NAIA schools, and independent schools (N=100) were sampled. A questionnaire was designed to establish the extent and reasons college coaches may have adopted an offensive play-calling system from the sidelines. Indications were that 59% of the coaches surveyed call over 50% of the offensive plays, while one-third of the coaches control over 90% of the offensive plays selected from the sidelines. NCAA coaches restrict the play-calling responsibilities of their quarterbacks to a greater extent than the NAIA coaches. The coaches sampled suggested that the particular situation, down, or quarter had minimal influence upon their decision to call an offensive play. Approximately three-fourths of the coaches call a percentage or all of the offensive plays because they have a better understanding of the other teams' defenses and spotters at the game, and more yrs. of experience reading defenses and calling plays. Some coaches also felt that if they selected the offensive plays it would allow their quarterback to concentrate on the mechanical aspects of the game.

Oklahoma State University, Stillwater, Oklahoma (A. B. Harrison)

592. CHALOUPECKY, Robert F. An evaluation of the validity of selected tests for predicting maximum oxygen debt. Ed. D. in Physical Education, 1971. 99 p. (A. B. Harrison)

Maximal O_2 debt following an all-out treadmill run was measured in 40 college age male Ss. Four other tests were administered and the scores correlated with maximal O_2 debt. The tests and the r's were time on an all-out treadmill walk at 4 mph and 30% grade, $\underline{r}$ =.161; time to complete 85 rev. on a bicycle ergometer against 1200 kpm/min resistance, $\underline{r}$ = -.294; time on a step running test with a vertical rise of 4.5 ft. and a horizontal distance of 12.5 ft., $\underline{r}$ = -.223; MBC, $\underline{r}$ =.441. Combinations of these tests in multiple $\underline{r}$'s offered no better relationship with maximal O_2 debt than MBC alone. It appears that while all-out treadmill, bicycle, and step running tests may induce O_2 debts, the times do not offer good predictors of the O_2 debt incurred or of debt capacity.

593. LARSON, Lea A. The development of a golf putting test. Ed. D. in Physical Education, 1971. 196 p. (D. Coleman)

Putting tests were administered to 42 Ss enrolled in beginning golf and 18 Ss enrolled in intermediate golf. The proposed test consisted of putting 20 balls from distances of 4, 8, 12, 16, and 20 ft. on an astroturf putting carpet. The carpet had a scoring grid superimposed upon it for measuring deviations in distance and direction from the hole. A criterion test was administered by having each S complete a round of 20 holes on a regular grass practice putting green. The proposed test did not have good predictive validity for the putting green test. The reliability of the proposed test for both groups and at all distances was questionable. Fifteen putts seemed to offer the optimal N of trials on a putting test for both groups. The best distance for a putting test for both groups was 8 ft. Additional trials at other distances did little to improve reliability or validity.

University of Oregon, Eugene, Oregon (E. R. Reuter)

594. ALLEN, Patricia. An investigation of administrative leadership and group interaction in departments of physical education for women of selected colleges and universities. Ed. D., 1971. 146 p. (A. A. Esslinger)

Seven questionnaire scales representing 7 variables were completed by 27 women administrators of college and university departments of PE for women and 176 full-time faculty members from these departments. The scales were initiating structure, consideration, tolerance of freedom, role assumption, group atmosphere, least-preferred coworker, and leader authority. Administrators' M scores were higher on the tolerance of freedom, consideration, and group atmosphere scales; faculty members' M scores were higher on the initiating structure, role assumption, leader authority, and least-preferred coworker scales. Significant differences between the leaders' scores and the M scores of departmental faculty were found in 24 departments on one or more of the behavioral variables; in 10 departments on the least-preferred coworker scale; in 11 departments on the group atmosphere scale; and in 12 departments on the leader authority scale. Faculty members' M scores among the various departments differed significantly on all measures except the least-preferred coworker scale. Two significant correlations were found for leaders' scores: between tolerance of freedom and leadership style, and between leader authority and leadership style. Eleven significant correlations were found among faculty members' mean scores: all 10 intercorrelations between the behavior variables and group atmosphere, and the correlation between leader authority and consideration. A multiple coefficient of .675 was found for leaders' scores using the least-preferred coworker scale (leadership style) as the criterion and including, in order, the intercorrelations of the role assumption leader authority, and tolerance of freedom variables.

595. BECKER, Kenneth C. The Lane County Community Mental Health Center: An evaluation of process. D. Ed. in Health Education, 1971. 174 p. (W. E. Smith)

This study was divided into 2 parts. Part 1 described the services of the Lane County Community Mental Health Center as conceptualized along the model of a comprehensive mental health center by the federal government. Results indicated that all 10 services of a comprehensive mental health center are covered by the Center, and 10 member agencies of the Center provide additional services that are not included in the 10 categories of services of a comprehensive mental health center. Part 2

attempted to answer the questions, "To what extent are admissions to the Center similar to Lane County admissions to Oregon State Hospital?" and, "What effect has the establishment of the Center had on Lane County admissions to Oregon State Hospital?" These questions were asked because a stated objective of the construction of mental health centers is the eventual elimination of state mental hospitals. Based upon the variables reported in this study, it is apparent from the comparisons of admission populations to the agencies that the Center has had little impact upon Lane County admissions to Oregon State Hospital, and the Center and Oregon State Hospital seem to deal with a basically different clientele.

596. BIRD, Evelyn Isabelle. A longitudinal and cross-sectional personality assessment of women ice hockey players. Ph. D. in Physical Education, 1971. 222 p. (B. F. McCue)

The 16 PF (Forms A & B) EPPS and PRF were used to assess the personality of 54 Canadian women intercollegiate ice hockey players. ANCVA and Scheffé post hoc comparisons were made among ability groups and teams and between champions and a control group. A survey of literature indicated a "sportswoman" personality which was consistent across ability levels and environments. The results of this study supported this general finding. The study made the following conclusions. In comparison with the national norms, the hockey players were high in autonomy, intelligence, endurance, abasement, creativity, and independence. They were low in affiliation, social approval, and dominance. Ability levels were not differentiated by separate traits except by the autonomy and dominance scales of the PRF. There was a high consistency of M trait scores across the 5 teams. The champions and the control group from the same institution were found to significantly differ on 8 trait scores. The University of Guelph championship team scores were not significantly different over a 3-yr. period. A regression equation for ability levels was generated from the personality inventories.

597. BLAZEY, Charles H. An analysis of the relationship between health and medical costs and leisure time activities of aged residents in South Dakota. D. Ed. in Health Education, 1971. 113 p. (F. B. Haar)

A study was made to determine if leisure programs rated good, poor, and excellent lower selected mecial costs. Problems inherent in the study were the determination of health and medical costs in selected geriatric facilities; the rating of the leisure programs; and the examination of the relationship between health and medical expenses and leisure programs. Three steps were taken to solve the problems: historical data to rate the leisure programs were evaluated; medical expense data were secured from the State Welfare Department; 12 variables were analyzed using a least squares 4x3 ANOVA with unequal subsample numbers. The Scheffé method was used to test the significance of post hoc comparisons. Four significant F ratios were found: total medical costs; nursing salary and wages; social service and REC wages, and other social service and REC costs. Significant conclusions were that leisure programs do not raise or lower medical costs; total medical costs are a function of yrs., not leisure programs; nursing salary and wages are a function of leisure programs, not yrs.; and social service and REC wages and costs are a function of leisure programs, not yrs.

598. CHRISTENSEN, Harriet. Procedural guidelines for undergraduate recreation field study programs at Army Service Clubs. M. S. in Recreation and Park Management, 1971. 92 p. (C. R. Reich)

Recreation education departments of 108 colleges and universities and 35 Army Service Clubs were surveyed by means of a mail questionnaire to

determine program titles, enrollment capabilities, and suggested changes in existing field study programs. Faculty representatives estimated that a total of 239 students/yr. would be interested and would participate in field study assignments at service clubs. Concurrently, service club supervisors estimated that approximately 160 students/yr. could be trained. Program planning and leadership techniques were the courses most recommended as prerequisites to field study placement. Recommended length of a field study program ranged from 6 to 26 wks., with M of 13 wks. and Md. of 12 wks. The recommended hrs/wk for field study ranged from 7 to 40 hrs., with M of 23 hrs. and Md. of 20 hrs. Both university and Army personnel expressed the need for better coordination between the service club, student, and education institution.

599. CRAMER, John L. A comparative analysis of unaided emmetropic and unaided noncorrected myopic underwater visual acuity. Ph. D. in Physical Education, 1971. 70 p. (E. R. Reuter)

Sixty Ss, 30 emmetropes (20/20 acuity or better) and 30 myopes (20/200 acuity or worse) were measured on a specially designed underwater instrument. Ss were randomly placed into 1 of 12 cells (treatment groups) and given 3 consecutive trials evenly spaced over 3 min. A three-way ANOVA was used to analyze the 2x2x3 factorial design to determine the difference between the Ms of emmetropes and myopes with various treatments of light intensity and solution. A biserial correlation compared the relationship between dichotomized atmospheric visual acuity (emmetrope and myope) and the continuous variable of underwater visual acuity for the total sample. The results indicates that myopes (20/200 or worse) can, on the average, see significantly better ($p<.05$) under water than emmetropes (20/20 or better); variation in illumination between 1 and 2 footcandles has little effect on unaided underwater visual acuity; variations in liquid mediums of hypotonic, isotonic, and hypertonic content used in this study for a duration of 3 min. have little effect on visual acuity; and the biserial correlation between unaided atmospheric and unaided underwater visual acuity is -.258.

600. DAVIES, Donald B. A comparative study of the whole and part methods of teaching handball to beginning students. D. Ed. in Physical Education, 1971. 119 p. (J. D. Adler)

Forty 11th grade students were divided into 2 equated groups on the basis of a handball volley test. One group was taught handball using the part method and the second group was taught by the whole method, playing the total game at all practice sessions. A modified round robin tournament, a handball test, and expert judgment were used to assess the effectiveness of teaching methodology. No significant differences ($p>.05$) were found. Validity coefficients for the shooting test ranged from .52 to .86, all significant ($p<.05$). Reliability of the test was .86, ($p<.01$).

601. DOWNIE, Patricia D. A study of the relationship between flexibility measures and chronological ages of six- to ten-year-old girls. M. S. in Physical Education, 1965. 154 p. (P. O. Sigerseth)

Nineteen flexibility measurements were taken on 140 ele. school girls by means of a Leighton Flexometer. The Ms for age groups showed no significant differences in the following 11 measurements: neck flexion-extension, neck rotation, arm flexion-extension, trunk flexion-extension, hip flexion-extension, thigh rotation, knee flexion-extension, ankle flexion-extension, foot supination-pronation, elbow flexion-extension, and hand lateral flexion. In the following 8 tests significant differences were found between the girls of different ages: neck lateral flexion, arm adduction-abduction, arm rotation, trunk lateral flexion, trunk rotation, thigh adduction-abduction, hand supination-pronation and wrist flexion-extension.

602. GIBSON, William N. A comparison of the backgrounds and self-actualizing tendencies of adult male joggers, players and non-participants. M.S. in Physical Education, 1971. 85 p. (J. D. Adler)

Three groups of Eugene, Oregon, men (N=90) designated as joggers, players, and nonparticipants, were compared on dimensions of a self-actualization personality inventory and by means of a sports background questionnaire. Results of the Personal Orientation Inventory revealed no differences among the 3 groups with regard to their competent or incompetent use of time, but the joggers and players revealed a better ratio of outer to inner direction than did the nonparticipants. Of the 10 profile scales which measured facets considered important in self-actualization, the only scale which showed a significant difference indicated that joggers were better able to view man as being essentially good than were the players or the nonparticipants. In terms of their sports and athletic backgrounds, all 3 groups showed remarkable similarities. Nevertheless, the responses did indicate that more of the joggers and players had received sports instruction, both at school and in the community, had gained sports experience on varsity sports teams, and generally had been exposed to sports to a greater extent during their high school and college yrs. than had the nonparticipants.

603. GRAY, Bryan J. A descriptive study of the consultant choices made by college students when faced with contemporary, hypothetical health problems. D. Ed. in Health Education, 1971. 111 p. (R. E. Kime)

A 3-part questionnaire was developed and administered to a sample of college students (N=1227) in 3 Ore. universities. It included a section for demographic data, a scale to measure dogmatism, and a set of 7 hypothetical health problems. A list of 16 different consultants was included for selection by the student on each problem. A % frequency distribution X^2, and a 3-way multivariate analysis showed there were significant choices for all 7 problems between male and female students, between single and married students, and between students with varied family incomes. There were no significant differences to be found between open and closed-minded students, between students from varied populations of SHS attendance area, or between students with various religions on any problems except the one dealing with pregnancy and abortion, which was significant ($p<.01$).

604. GREENLEE, Geraldine A. The relationship of selected anthropometric measures to performance on the Hanson Shoulder Test by girls of selected ages. Ph.D. in Physical Education, 1971. 130 p. (E. Wooten)

Twelve anthropometric measurements were taken on 134 girls of 9, 11, 13, 15 yrs. of age in 4 schools in central Ill. Fifteen indices of body proportion were derived from these anthropometric measurements. Performance on the Hanson Shoulder Test showed significant increases from ages 9 through 13. A slight, nonsignificant decline was noted with the 15-yr.-old girls. Body size and proportion had no consistent effect on performance of the shoulder test. Zero-order r's revealed that measurements which reflected width of the trunk had a greater influence on performance than did the length measurements of body build. The effect of body size and proportion had a different influence on upper extremity performance for each age group. Bi-iliac width and its 3 derived indices significantly influenced performance at 9 yrs. of age. At 11 yrs. of age, body proportion had a stronger significant influence on performance than did the body size measurements. Body size and proportion had little influence on performance at age 13; indices of body build were not related to performance at any of the 4 ages; wt. was a significant factor in performance only at age 15.

605. HAMERSLOUGH, Walter Scott. The effectiveness of three methods of instruction, followed by mental rehearsal, in learning three complex gross motor tasks. D. Ed. in Physical Education, 1971. 147 p. (J. D. Adler)

Ss (99 males and 99 females) were assigned to 1 of 3 motor tasks; softball windmill pitch, golf chip shot, or soccer dribble. Ss in each task received instructions by 1 of 3 modalities: reading, observing a film, or listening to a recording. A 3x3x2 completely randomized factorial design resulted in 9 combinations of motor tasks and modes of presenting instructions for both males and females. Ss received 4 min. of instructions, followed by 5 min. of mental rehearsal daily for a period of 2 wks. Results indicated that the presentation of instruction, followed by mental rehearsal, as used in this study, was relatively ineffective in increasing performance in a complex motor task. Achieved skill levels were retained for up to 4 wks. For males, there was no difference in the effectiveness of aural and visual modalities of stimuli when learning the tasks. Females were more effective in utilizing information presented in an auditory modality than that which was presented by a filmed demonstration.

606. HANSEN, Vernon Arthur. The nature and incidence of injuries to students in physical education classes in Oregon secondary schools during the period from 1964-65 to 1968-69. Ph. D. in Physical Education, 1971. 70 p. (P. O. Sigerseth)

The rate of injuries to pupils increased from an initial rate of 2.4 in 1964 to the highest rate of 4.0 in 1966-67, and then declined to 1.3 at the end of the 1968-69 academic yr. The M rate of injuries was 2.6 for the period from 1964 to 1969. The M injury rate for boys was 2.9 and 1.7 for girls. Fifteen-yr.-old boys and girls were injured more frequently than any other age group. The greatest number of injuries were received in 2:00 p.m. classes. The types of injuries most frequently sustained were sprains, contusions, and fractures. The sites of the injuries most often reported were knees, ankles, and fingers. The rate of injuries in high school PE classes in Ore. is declining when the findings in the present study are compared with those reported in earlier studies. The likelihood of injury in PE classes is greater indoors than outdoors. The parts of the body which are most likely to be injured are the lower extremities, and the type of injury most apt to be incurred is a sprain.

607. HOWE, Bruce L. Longitudinal analysis of the relationships within measures of personality and social status and between these measures and physical variables for boys aged twelve through seventeen years. Ph. D. in Physical Education, 1971. 167 p. (H. H. Clarke)

Two groups of 71 and 64 boys were given the following tests for ages 12 through 17: Cowell Behavior Trend Index, Cowell Personal Distance Ballot, sociometric questionnaire, CPI, and Davidson Adjective Check List; maturity, physique, body size, strength and motor tests were also given. Generally significant and frequently high r's were obtained between the various subscales or parts of the personality tests. However, the r's between personality tests were low and mostly insignificant. Significant r's were found between the personal status tests and somatotype components, muscular strength and muscular power; the r's between subscales of the CPI and physical and motor variables were mostly insignificant. Generally, r's did not differ significantly from age to age.

608. IVERSON, Donald C. A drug knowledge survey of college students selected from colleges and universities throughout the United States for the purpose of establishing national norms. Ph. D. in Health Education, 1971. 74 p. (M. C. Hosokawa)

The Iverson Drug Knowledge Test, which is comprised of 58 multiple-choice items dealing with the physical, social, legal, and general aspects of the drug topic, was administered to 3,788 college and university students who were enrolled in 31 institutions located in 23 states. The M of the test was 22.8 with a SD of 5.75. The Southwest area achieved the highest M (25.0) followed by the Northeast (24.5), the Northwest (23.9), the Mid-North (22.9), the Southeast (22.7) and the Mid-South area (19.6). ANOVA revealed 9 of the 15 M comparisons to be significant. Chico State College achieved the highest mean (30.8), followed by Brigham Young University (27.8), and Fresno State College (25.9). Females tended to score higher than males on the Iverson Drug Knowledge Test, but the difference was not significant. A significant difference was found to exist between the drug knowledge of college jrs. and srs. and the drug knowledge held by college fresh.

609. JEROME, Wendy Carole Foster. A study of the academic achievement of high school students when sports participation and selected sociological variables are considered. Ph. D. in Physical Education, 1971. 194 p. (J. D. Adler)

Changes in the academic grades of 1,059 Sudbury, Ontario, SHS students were examined when sports participation, sex, socioeconomic status, academic stream, athletic ability, and ethnic background were considered. In studying the relationship between academic achievement and athletic participation, it was found that, among female subjects, nonparticipation relates to significant decreases in academic achievement; middle/upper class males exhibit a negative relationship; lower class female athletes exhibit a much greater positive significant relationship than do middle/upper class females; lower class nonuniversity bound and middle/upper class university bound males exhibit a significant negative relationship; and students combining participation in both school and community sports programs exhibit a positive relationship. No general significant relationships were noted between interscholastic participation and academic achievement when preparticipation grades were examined, when athletes and nonparticipants were compared grade by grade through SHS, or when athletic ability, academic stream, and ethnic backgrounds were considered. This study found no indication that a "fun" subculture, valuing athletics and devaluing academic matters, existed in the Sudbury schools.

610. KUHN, Werner. The effects of physical warm-up and mental rehearsal on the performance of experienced and nonexperienced soccer players in the soccer dribble test. Ph. D. in Physical Education, 1971. 87 p. (J. D. Adler)

Eighteen experienced and 18 nonexperienced soccer players performed a soccer dribble test under the following conditions: general warm-up, specific warm-up, mental rehearsal, combination I (mental rehearsal followed by specific warm-up), combination II (specific warm-up followed by mental rehearsal), and no warm-up. Results: a statistically significant difference was found between the 5 warm-up conditions and no warm-up for the nonexperienced group, the experienced group, and both ability groups combined. Mental rehearsal, combination I, and combination II proved significantly better than general warm-up for the nonexperienced group. Combination II proved significantly better than mental rehearsal for the experienced group. Combination II proved significantly better than general warm-up and mental warm-up for both ability groups combined. There was a statistically significant difference between the 2 trials in favor of trial 2 for both groups under each of the 6 exp. conditions. There was a significant, positive correlation between the subjects' evaluations and their objective test scores.

611. LAPTAD, Richard E. The origin, development and function of the United States Gymnastics Federation. D. Ed. in Physical Education, 1971. 212 p. (B. F. McCue)

The United States Gymnastics Federation (USGF) had its formal inaugural meeting in Chicago, Ill., on Dec. 8, 1962. It is an organization of organizations, not one of individuals, clubs, or regions. Membership in the Federation is limited to organizations which promote gymnastics on a national basis. Its purpose is to coordinate the activities of these organizations in promoting gymnastics on all levels, from classes of beginners to the Olympic competitors. This study gives an account of the history of events leading to the formation of the USGF and relates the history of the Federation from its inception to 1971. The history involves building a program of service for the gymnastic community, establishing a home for the USCF, and the USGF's 8-yr. struggle to replace the AAU as the international franchise holder and thus become the official controlling body for gymnastics in the U. S.

612. LEYSHON, Glynn. A study of the effects of submaximal exercise on the skeletal growth of pubescent white rats. Ph. D. in Physical Education, 1971. 69 p. (C. Brubaker)

Sprague-Dawley rats (N=50) were divided at 1 mo. of age into 2 sedentary control groups of 10 animals each and 3 exp. groups of 10 animals each. The exp. animals were run on a treadmill at a speed of 90 ft/min for 9 wks. Group I of the exp. animals ran 10 min. a day; group II ran 20 min., and group III ran 40 min. After 9 wk. all animals were sacrificed and their tibiae dissected and examined. There were significant differences in wt. between the exercised animals and the sedentary controls, but there were no significant differences in skeletal growth between any of the groups as measured by tibial length and the tibial test for bone maturity.

613. LINDLEY, Donald D. Scope of outdoor recreation in thirty-five cities in the Pacific Northwest. Ed. D. in Recreation and Park Management, 1970. 115 p. (L. S. Rodney)

Thirty-five cities and districts with populations of 20,000 or more in Idaho, Montana, Oregon, and Washington completed a mail questionnaire concerning the outdoor REC opportunities available. Few outdoor REC programs were found available in the cities and districts surveyed, and most programs that were conducted were instructional in nature. Swimming was the most frequently offered activity. Lack of funds was the chief reason given by officials for not offering more programs. No consistent program pattern was found between cities and districts. A cooperative approach among agencies within communities was indicated as necessary to the development of an effective community-wide outdoor REC program.

614. MCGOWN, Carl M. The effect of motor set, sensory set, and natural set on reaction time at different levels of auditory intensity. Ph. D. in Physical Education, 1971. 72 p. (J. D. Adler)

Purposes of this study were to investigate the effect of motor set, sensory set, and natural set on reaction time, using 4 different auditory stimulus intensities; to investigate the effect of the 3 sets on muscle electrical activity, using 4 different auditory stimulus intensities; and to determine the relationship between muscle electrical activity, at the end of the foreperiod, and RT. The 72 Ss were divided into 3 groups for testing. Individual testing sessions included the location of, and placement of electrodes on, the motor end point of the extensor digitorum muscle; the establishment of a muscle electrical activity baseline; set instruction; and data collection. A mixed design ANOVA showed no

significant differences between the 3 sets for RT and muscle electrical activity ($p>.05$). Increases in stimulus intensity produced significant improvements in RT and significant increases in muscle electrical activity for all 3 sets ($p<.05$). The r between RT and muscle electrical activity was not significant ($p>.05$).

615. MORRISON, Douglas A. The conservation message in America: A content analysis of four major American conservation organizations from 1935 to 1968. Ph. D. in Recreation and Park Management, 1969. 239 p. (L. S. Rodney)

A content analysis was conducted from 132 randomly selected issues of 4 magazines of American conservation organizations (Sierra Club Bulletin, Audubon, National Parks Magazine, and The Living Wilderness). Evidence was found to support the following hypothesis: the elaborateness of a periodical published by a conservation organization increases with the amount of outside advertisement; the larger the organization becomes, the more specialized its organization leadership role becomes; and conservation messages aimed at arousing audience support will contain the major premise in the opening paragraph in order to increase the likelihood that the message will be accepted.

616. OLSON, Lorne H. A comparison of participant recruitment techniques in senior citizen community centers. E. D. in Recreation and Park Management, 1971. 72 p. (C. R. Reich)

Senior citizens in Eugene (N=170) and Albany (N=162), Oregon, were exposed to 4 participant recruitment techniques used to promote community REC center programs. Only 5 of the 332 Ss (less than 2%) responded to the recruitment procedures tested. A questionnaire was also administered to participants (N=165) currently attending the senior centers of the two communities. A large percentage of participants presently attending the centers (Eugene, 78%; Albany, 95%) were motivated to attend because a friend had informed them about the center, or they had read information concerning the center in a local newspaper. It was concluded that the implementation of any of the 4 techniques tested would not be recommended as a practical replacement for the current techniques of participant recruitment by friends or by local newspaper articles and announcements.

617. OSTERNIG, Louis R. Optimal loads and velocities producing muscular power in human subjects. Ph. D. in Physical Education, 1971. 49 p. (E. P. Wooten)

Quadriceps muscle force of 16 college football players was tested by means of an isokinetic dynamometer in order to determine optimum loads and velocities producing muscular power. Prior to testing, 8 Ss had completed a program of progressive resistance exercises utilizing the quadriceps muscle group in repetitive leg extensions. Ss were tested at velocities of knee extension ranging from 5 to 25 rpm and throughout a range of movement from 95° to 130° of knee extension. Isometric measures were also recorded at corresponding angles. The muscular forces recorded isokinetically at the various velocities were then compared to the isometric forces at the corresponding angles of knee extension to ascertain the arithmetic proportion of isokinetic to isometric force. Results indicated that the proportionate values of isokinetic to isometric force which produced max. power were not directly comparable to similar loads found in vitro. A series of t tests revealed no significant differences among the optimal loads and velocities between the exercised and nonexercised groups.

618. PARTON, Brian A. Comparison of various motor ability, strength and structure measures of university varsity golf,

tennis and volleyball team members. D. Ed. in Physical Education, 1971. 148 p. (L. R. Gaer)

Twenty-two motor ability, 9 strength, and 22 body structure measurements were taken on 10 members of each of the University of Oregon varsity golf, tennis, and volleyball teams. ANOVA indicated significant differences between the golf, tennis, and volleyball groups in the following 11 measures: total body RT using a visual stimulus, discrimination and choice hand RT, hip flexion-extension; shoulder flexion strength, hip extension strength, knee extension strength, wrist palmar flexion strength, ankle plantar flexion strength; body wt., hand length, and leg length. The %s of intrafactor r's reaching significance were 11%, 15%, and 16% of the golf, tennis, and volleyball groups, respectively. The %s of interfactor r's reaching significance were 6%, 10%, and 9% in the 3 groups.

619. PEARSON, John M. Single-year and longitudinal comparisons of personality, intelligence, and academic achievement characteristics of senior high school athletes and nonparticipants. Ed. D. in Physical Education, 1971. 287 p. (H. Clarke)

For the single-year analysis, the number of boys in each grade were 328, 10th; 313, 11th; 240, 12th. The Ss for the longitudinal analysis were 193 boys who had been tested in each grade from 9 through 12. The tests were CPI, California Test of Mental Maturity, Iowa Test of Educational Development, Differential Aptitude Test, and GPA. Athletes were judged by their coaches as outstanding, regular players, and substitutes. ANOVA with Scheffé post hoc test showed that athletes were superior to nonparticipants at 1 or more grades in 1 or more sports in the following: social participation, communality, sociability, and self-acceptance; in all sports but wrestling, they considered themselves to be leaders. Longitudinally, athletes as a group improved more than nonparticipants in close personal relationships, self-acceptance, sense of well being, socialization, communality, achievement via conformance, and intellectual efficiency; the nonparticipants indicated a greater increase in nervous manifestations. Athletes were superior to nonparticipants, especially in football and basketball, on most academic achievement measures; longitudinally, they also made greater gains on quantitative thinking. Differences between the intelligence Ms of athletes in all sports and nonparticipants were not significant.

620. PHILLIPS, Everett J. A study to determine the effects of selected assisting wind velocities on the time for a fifty-meter sprint. Ed. D. in Physical Education, 1971. 55 p. (J. A. Adler)

Data for 211 trials at wind velocities of 1, 2, 3, 4, 5 and 6 m/s by 10 college sprinters and timed to an accuracy of .001 of a sec., were treated by a 2-way ANOVA. Significance ($p<.05$), between groups, velocities, and interaction were obtained from the M times of average and fastest trials of varsity and JV sprinters at each of 7 wind velocities. Post hoc comparisons rejected differences between 0 and 6 m/s velocities ($p>.05$). Although nonsignificant, varsity Ss for average and fastest trials produced faster M times at 1 and 2 m/s than at 0 wind. For average trial, JV subjects produced faster mean times at 1, 3, and 6 m/s, and JV fastest trials at 1 and 3 m/s. All other M times for both groups of subjects were slower than their M times at 0 m/s. Reliability was affected by the time between test dates, variable wind conditions, and competitive differential between Ss. Assisting winds of 3, 4, 5, and 6 m/s appeared to retard the time for a 50-m sprint.

621. PIPHO, Armin Paul. An investigation of the relationships between selected physical growth and developmental measures and performance in the standing long jump by five-year-old children. Ph. D. in Physical Education, 1971. 76 p. (E. P. Wooten)

Variables measured included skeletal age, stature, body wt. upper and lower extremity lengths, trunk/lower extremity ratio, and strength of the hip and knee extensors and ankle plantar flexors. Sex differences were also compared. Caucasian 5-yr.-old boys and girls (N=50) attending private day care centers in the Eugene-Springfield area were tested within 3 mo. of their birthdays. Knee extension strength was found to correlate significantly with standing long jump performance ($p<.05$). No significant differences were found between the M scores of boys and girls on any of the growth and developmental measures or the standing long jump. However, separate standards for boys and girls were used to assess skeletal age, and they accounted for approximately a yr. difference, favoring girls over boys at 5 yrs. of age.

622. SCHARFE, Gail C. The development of trends in interscholastic sports competition for senior high school girls in Oregon from 1910 to 1970. M.S. in Physical Education, 1971. 136 p. (B. F. McCue)

The development of trends was examined in relation to several milestones that were selected and thought to be significant by the author. The main procedure for gathering data was library research. Personal interviews with persons who have been involved with the development of girls' sports in Oregon were also used. Results showed that interscholastic competition for Oregon SHS girls has undergone several alternating periods of rise and decline. By 1910 basketball was well on its way as a competitive sport for girls. Oregon followed national trends with strong competition, mainly in basketball, until the 1930s and 40s, when competition in all sports for girls was deemphasized. The sports of tennis, volleyball, swimming, and golf had become established by the 1950s, and the ground work was laid for expansion in the 1960s. During the 60s the individual and dual sports of tennis, swimming, gymnastics, and track and field for girls grew rapidly, and track and field became the most popular competitive sport.

623. SCHWARTZ, James F. A survey of differences in characteristics between those low-income elderly who accepted and those who refused the Polk County Elderly Health Screening Program--preventicare clinic. Ed. D. in Physical Education, 1971. 146 p. (R. E. Kime)

A random sample of 100 low-income elderly in Polk County, 50 each from the accepted and refused strata, was drawn from 173 who participated and 225 who refused to participate in a preventicare clinic. An interview questionnaire was formulated, pretested, precoded, then employed to Ss within their homes. Data were processed for totals, %s, and X^2. Significant differences were found in demographic characteristics, such as living arrangements, education, and length of residency in Polk County; help and social contacts with children and friends; physical health status; knowledge of social services; and physical condition of respondents ($p<.05$).

624. SHELLEY, Gene P. Commercial recreation developments on private rural lands in Lane County, Oregon: A study of landowner attitudes. M.A. in Recreation and Park Management, 1971. 78 p. (C. M. Reich)

Landowner attitudes toward commercial recreation developments were described for 93 respondents. X^2 for relatedness between expressed present attitudes and the following 11 variables were computed: nonagricultural and forestry land income, nonland income, knowledge of federal assistance programs for REC developments, total acres of property owned, acres of idle land owned, yrs. of ownership, no. of family members, age of landowners, total annual family net income,

road mileage from population centers to property owned, and road mileage from nearest main traffic arterial to property owned. Only "acres of idle land owned" was significantly related to attitudes ($p<.05$). Forty-two % of the respondents expressed a current interest in developing their properties for commercial REC purposes. Only 31% of the respondents were aware of federal assistance programs for REC developments on private rural lands.

625. SOUBRIER, Robert. Investigation of selected planning criteria for recreational facilities in Quebec, Canada. M. S. in Recreation and Park Management, 1971. 57 p. (C. R. Reich)

Community REC and education agencies in Quebec, Canada (N=84), responded to a mail questionnaire survey concerning planning criteria, such as the no. of institutions according to city populations; weekly hrs. of operation; sources of income; initial and subsequent capital expenditures per capita of users; and operational expenditure per capita of users. Coordination between schools and REC centers according to the commonly accepted park-school concept was reported as not widely developed in Canada. Many schools had additional time and space available to serve the recreation needs of the community. Recommendations included that schools should be planned to serve the day and evening education and REC needs of all members of the community; and that the number of evening and night time users should be increased to reduce the capital and operational costs per capita of users.

626. SPRIGINGS, John A. A study of boys intramural sports programs in selected junior high schools in the Province of Alberta during the 1970-71 school year. M. S. in Physical Education, 1971. 150 p. (J. W. Borchardt)

The data for the study, obtained by means of a questionnaire, disclosed that most of the selected JHS in Alberta provided an intramural sports program for boys. In a majority of the schools the intramural program was administered by an intramural director who was trained in PE and had received some instruction related to intramural organization and management. In order that students might share in the planning and administration of the intramural program, schools used students as intramural managers and as intramural officials. Most schools provided a broad program of activities, with more schools participating in team sports than in dual and individual sports.

627. WEESNER, Marjorie Larrance. A comparison of two approaches in the teaching of conditioning and their effect upon the fitness, knowledge, and attitude of college women. D. Ed. in Physical Education, 1971. 202 p. (Betty F. McCue)

Three instructors each taught 2 classes, employing the teacher-directed approach in 1 section and the student-centered approach in the other. Physical fitness was measured by the AAHPER Youth Fitness Test, attitude was measured by the Wear Attitude Inventory, and conditioning knowledge was measured by a multiple-choice test. Questionnaires were used to ascertain course satisfaction and to discover differences in amount of participation. The student-centered approach was significant (ANOVA, $p<.05$) in satisfaction with the method of instruction. A t test showed significant gains in post M in all tests, except the standing broad jump, softball throw, and Wear Attitude Inventory. The teacher-directed classes participated to a greater extent in physical activity outside the class.

628. WHITE, Douglas G. An analysis of selected postgraduate seminars in psychiatry for nonpsychiatric physicians. Ed. D. in Health Education, 1971. 104 p. (W. E. Smith)

This study sought to determine if significant differences exist among the participating physicians as to whether the physician's attitudes changed along psychiatrically meaningful lines during the seminars; and whether background and status characteristics of individuals could be associated with and related to attitudinal change. Pre- and post-seminar questionnaires, similar to the WICHE questionnaire, Questionnaire for Physicians Enrolled in Postgraduate Courses in Psychiatry, were developed and administered to 80 physician-participants. Forty-seven useable questionnaires were evaluated. M psychiatric orientation attitude scores were derived from 3 case studies on each of the questionnaires which were compared using ANOVA, ANCOVA and r, with each of the 5 selected background variables. There were no significant differences in the physician's psychiatric orientation scores when classified by age, type of medical practice, medical practice organizational structure, and length of medical practice in a particular community. There was a significant difference in the mean psychiatric orientation scores between the various patient load groups of 7-12, 13-18, 19-24 and 25 or more patients, with physicians treating 24 or more registering highest.

629. WRIGHT, Owen L. A comparison of the injuries to football and soccer players in the middle-Atlantic states collegiate athletic conference in 1969 and 1970. Ph. D. in Physical Education, 1971. 115 p. (P. O. Sigerseth)

Data were collected through an interview and checklist procedure in order to compare the nature, frequency, and severity of injuries sustained by participants in intercollegiate soccer and football. Injury rates, per 100 participants, for the 2 yrs. were 36.4 in football and 33.4 in soccer. The average participation absence following each injury was 7.6 days in football and 6.8 days in soccer. The injury rate of participants disabled for the remainder of the season was 4.7 in football and 2.5 in soccer. Sprains, contusions, and strains were the types of injuries reported most frequently and the lower extremities was the most often injured region of the body, in both sports. Injuries were incurred in the greatest numbers during the mo. of Sept., early periods of practice, and the first periods of games in both football and soccer. The highest rate of injuries in both sports was received by 20-yr.-old players. Offensive backfield in football and goalie and fullback in soccer were the positions in which the most injuries occurred. Football and soccer players sustained injuries at approximately the same rate, but the injuries received in football were often more severe.

630. WYNN, Mary J. Relationship of heart rate and oxygen uptake of college women at selected work loads. Ph. D. in Physical Education, 1971. 92 p. (E. P. Wooten)

A break-off point as established by failure to reach a steady state condition or by an attained HR of 180 bpm at selected work loads was determined for 33 untrained college women in 3 categorical wt. groups, each numbering 11. Each S was tested at work loads of 300, 450, 600, 750, 900 and 1,050 kpm on the bicycle ergometer. A break-off point did not occur in a specific work load for any single group. Statistically significant differences were found for M max. $\dot{V}O_2$ at selected work loads except between the 750-1,050 kpm work load. No statistically significant differences occurred for M max. HR between the 600-750, 750-900, 750-1,050 and the 900-1,050 kpm work loads. No statistically significant differences for M pulmonary ventilation occurred between the 750-900, 750-1,050 and the 900-1,050 kpm work loads. Highest M max. $\dot{V}O_2$ of 1.96, 2.30, and 2.30 L or 41.12, 40.61, and 35.69 ml/min per kg body wt. were obtained at work loads of 750, 1,050 and 900 kpm for Groups I, II and III respectively.

The Pennsylvania State University, (E. A. Gross)
University Park, Pennsylvania

631. ANDERSON, Barbara Jeanne. The effect of videotape replay on the movement self-concept of college women badminton players. M. Ed. in Physical Education, 1971. 94 p. (H. M. Lundegren)

Two badminton classes in the required PE program were taught basic skills and strategy over a 5-wk. period with the exp. group (N=29) being exposed to VTR as a supplemental teaching device. The control (N=25) was taught using a traditional approach. Ss in the exp. class were taped 4 times during practice, game and/or tournament play. The tapes were reviewed immediately, accompanied by analysis of skills and play. All Ss were administered a Q-sort of movement self-concept on a pre- and post-test basis. The VTR had the effect of increasing the degree of r between the real and ideal movement self-concept for the exp. group. The control group did not change significantly. The movement self-concepts of successful and unsuccessful subgroups were also compared. Successful players were those who won at least 88% of the points they played in modified round robin singles play; unsuccessful players won 70% or less of the points they played. Analysis was completed for this success in play factor as well as for a combined success in play and instructor's subjective evaluation factor. The r between the real and ideal movement self-concepts of the successful control group was consistently higher than for the unsuccessful control group.

632. BARKER, Robert E. Development of a method to determine recreation land-use alternatives by identifying and comparing environmental requirements for activities and resource characteristics for a recreation area. M. S. in Recreation and Parks, 1971. 177 p. (B. van der Smissen)

The study identified the REC environmental requirements for a ruffed grouse preserve for nature interpretation, identified the resource characteristics of a potential REC site (Stone Valley Recreation Area, the outdoor area of Penn State University), and demonstrated how these 2 aspects may be compared to yield possible REC land-use alternatives. The methodology developed, based upon a system of grids and resource requirements and characteristics, could be utilized for other REC land uses. Individual rating scales to use in each grid were established for vegetation, soils, and slope. Overall desirability of a potential site for the specific activity was determined by a composite rating scale.

633. BELL, Clarence W. A comparison of three methods for obtaining maximal oxygen consumption in children of low normal and below normal intelligence. M. S. in Physical Education, 1971. 49 p. (J. S. Skinner)

The Ss were 83 boys and 61 girls aged 6.3 to 15.5 yrs. who were assigned to 1 of 4 age groups. After a 3-min. warm-up walk each S was sequentially assigned, based on age, sex, and order of appearance, to 1 of 3 treadmill methods. Method A was a progressive load continuous test where the S began walking on a 10% grade and the grade was increased by 2.5% every 2 min. until the S reached a max. Method B was identical, except that the grade was increased every 3 min. Method C was a progressive load intermittent test where the S walked 4 min. on a 15% grade followed by a 10-min. rest period; the grade was then increased by 2.5%. The walking rate for all test methods was 3.5 mph. HR was monitored and expired air samples were collected in Douglas bags for analysis. Max. values for $\dot{V}O_2$ and HR, and the % grade attained did not differ significantly among the 3 methods. Total time involved in conducting Method C was significantly longer than Methods A and B; Methods A and B did not differ from each other.

634. BICKETT, Philip J., Jr. A biomechanical analysis of treadmill and overground running. M.S. in Physical Education, 1971. 64 p. (R. C. Nelson)

The variabilities of the velocities of the body centers of gravity of 9 college Ss who ran both on a treadmill and overground under matched conditions of speed and slope were compared. All Ss who were members of the PSU cross-country or track teams ran at 3 paces (11, 16, and 21 ft/sec) and on three slopes (level, uphill at a 10% grade, and downhill at a 10% grade). Thus, each S ran under 9 different conditions. The overground horizontal velocity was calculated from a film analysis of a typical running stride, and the treadmill belt was set at the exact speed derived from this analysis. This procedure yielded a matched set of conditions. There were no differences between the means of the horizontal velocities for the matched conditions. However, the overground velocities were more variable than the corresponding treadmill velocities. The differences in variability were significant for all 9 experimental conditions ($p<.01$).

635. BRILL, Kathryn H. The effect of swimming and water activities on socialization of geriatric mental patients. M. Ed. in Recreation and Parks, 1971. 88 p. (B. van der Smissen)

This is a case study of 4 aged patients in a psychiatric hospital who participated in a swimming program 3 times a wk. for 6 wk. It was concluded that a water activities program is effective in increasing or at least maintaining the skill levels of the patients and in increasing socialization; however, the study does not support or reject the hypothesis that socialization patterns can be generalized from the special water activities program to the geriatric ward. The program was composed of various skills and games.

636. BUCHANAN, Clay W. The effects of time and velocity on the strides of experienced middle distance runners. M.S. in Physical Education, 1971. 51 p. (R. C. Nelson and E. R. Gray)

The running strides of 5 middle distance runners from PSU were observed longitudinally (Oct. 1969 - June 1970) and for lateral dominance. This biomechanical analysis of the temporal factors of the running stride (stride rate, stride length, time of support, and time of nonsupport) utilized high speed motion picture films for the acquisition of data across the time period (8 mon.) and between right and left strides (lateral dominance). Four velocities were selected to obtain data distribution across the S's entire range of speed. These velocities were 16 ft/sec, 22 ft/sec, max. speed, and normal cross-country racing pace. The Ss completed a minimum of 2 trials through a 22-ft. filming zone for every velocity condition. The filmings took place on an artificial track. The conclusions of this study were that all temporal factors of the running stride except time of support changed during the period of the study; specifically, stride length increased, stride rate decreased, and time of nonsupport increased; also, that there were no differences between right and left strides in this investigation.

637. CARRUTHERS, Randall E. Analysis of judges' scores during the 1969-70 Eastern Intercollegiate Gymnastic League dual meet season. M. Ed. in Physical Education, 1971. 55 p. (C. A. Morehouse)

All judges' scores in the 37 dual meets held within the EIGL during the 1969-1970 competitive season were examined to determine objectivity among the judges. A computer program was utilized to ascertain, for each judge, the M algebraic deviation, and M absolute deviation, and the % of time scores were used to determine the median score. Relationships of the objectivity of the 20 judges to the number of yrs. judging experience, previous competitive experience, and F.I.G. examination scores

were also determined. Rankings of officials were employed to compute rank difference rs among judging performances, the rankings of scores in the F. I. G. exam, and yrs. of judging experience. Mann-Whitney U Tests were conducted to determine differences in rankings between judging performances of the groups of officials with different levels of competitive experience. Some agreement among the scores awarded by the officials was revealed. The % of time the scores were used, absolute deviation, and scores on the F. I. G. exam appeared to be the most useful indicators and predictors of objective judging. Yrs. of judging experience, previous competitive experiences, and M algebraic deviation seemed to be of little value in predicting judging performances.

638. DAWSON, Emily D. The value of creative dance in elementary school education. M. Ed. in Recreation and Parks, 1971. 116 p. (B. van der Smissen)

Five values, based upon the tasks of the ele. school as presented in the Yale-Fairfield Study of Elementary Education, were studied: aesthetic-creative development, physical health, mental and emotional health, social development, and moral and spiritual values. The creative and physical aspects were analyzed in greater detail. A historical brief of creative dance beginning with the time of Isadora Duncan was developed. Research supported many of the claims traditionally made by dance educators for the values of creative dance for children. If the full potential of creative dance in ele. school education is to be realized, the instructor must not only be more aware of the many aspects of the child's development but also must plan for realization of the values. Guidelines regarding the necessary conditions of creativity to foster same were set forth and include the aspects of motivation, self-limitation, receptivity, and competence. Relating to physical health, the principles of overload and specificity of training must be adhered to. With these principles in mind, the following aspects were presented with guidelines: muscular endurance, flexibility, cardiorespiratory capacity, muscular strength, and neuromuscular coordination.

639. DRUMMOND, Jean A. The effect of adaptive procedure on the extent of participation by the physically handicapped in selected recreation activities. M. Ed. in Recreation and Parks, 1971. 109 p. (B. van der Smissen)

For a 5-wk. period, 2 REC programs per day were conducted, 1 with adaptive procedures and 1 without, for 2 groups of physically handicapped patients in a neurological unit in a state hospital. The REC activities included a variety of low organized games, arts and crafts, musical activities, etc. It was concluded that the use of adapted procedures in REC activities does increase the extent of participation in the activities by the participants, and in turn within this increase in the extent of participation was also manifest an increase in level of social interaction among participants of an activity and in the overall adjustment to the disability relative to improved attitude, cooperation, tolerance, and general disposition.

640. DUVAL, Earl H. A comparison of the visual versus the non-visual take-off techniques in the running long jump: An experiment and survey approach. M. Ed. in Physical Education, 1971. 41 p. (J. A. Lucas)

Untrained college students (N=34) were divided into 3 equal-training groups according to their long jump pretest performances. These groups were randomly assigned 1 of 3 training treatments over a 5-wk. period. The visual group jumped every practice session by using checkmarks and focusing their eyes directly on the take-off board. The nonvisual group also jumped every practice session; however, this group used basketball

blinders to prohibit the S's visual contact with the take-off board and checkmarks. This group jumped by concentrating on their running approach, by not using checkmarks, and by counting their strides to the board. The 3rd group ran 50-yd. sprints during the training period. There were no statistically significant differences among the 3 groups. Significant differences within the groups were found in the visual and nonvisual groups. This was attributed to the training program due to the fact that these 2 groups jumped throughout the program. In addition to the exp., a survey questionnaire was received from 59 coaches. This questionnaire surveyed the attitudes these coaches had toward the 2 take-off techniques; the majority preferred the nonvisual take-off method over the visual method.

641. EATON, James D., Jr. The effect of playing handball on the aggressive responses of thirty-two skilled handball players. M. Ed. in Physical Education, 1971. 49 p. (D. V. Harris)

Skilled male volunteer handball players (N=32) were administered the Gough Adjective Checklist immediately prior to and after playing handball. Responses from the 2 testing sessions were converted to standard aggression scores. The Wilcoxon matched-pairs signed-ranks test and the Mann-Whitney U test nonparametric techniques indicated support for the cathartic concept of aggression, in that the total group of players experienced a significant decrease in aggression levels from the preplay to the postplay state. It was further indicated that winning or losing a handball match did not have a significant effect on the change of aggressive responses from the pre- to post-play conditions.

642. EDWARDS, George J. The relative effects of two wrestling conditioning programs on the development of cardiovascular fitness. M. Ed. in Physical Education, 1971. 43 p. (C. A. Morehouse)

College varsity and fresh. wrestlers (N=30) were assigned to 1 of 2 equated groups. One group participated in a conditioning program consisting of a combination of wrestling and running and the other group participated for an equal amount of time in a program which involved wrestling only. Differences in cardiovascular fitness levels were evaluated at the end of a 5-wk. period using the Gallagher and Brouha modification of the Harvard Step Test. There was no significant difference between the groups at the end of the exp. period in cardiovascular fitness. Both groups showed significant improvement in cardiovascular fitness from pre- to post-tests.

643. EVANS, Betsy. An investigation of changes in the self-concepts of women participants on an intercollegiate basketball team during a competitive season. M. Ed. in Physical Education, 1971. 57 p. (D. V. Harris)

The Q-sort technique was used in an attempt to discern any changes in self-concept among the PSU Women's Basketball Team and an instructional class after exposure to a team situation. Pre- and post-test scores for the team, the team's major subdivisions, and the control group were compared. No significant changes were found to occur for the members of the team either collectively as a unit or as various subdivisions. The control group evidenced a significant change in self-concept. The pretest comparison between the team and the control group revealed a significant difference. However, the posttest analysis failed to show a significant difference between the 2 groups. This might suggest that change in the self-concept probably occurs upon initial exposure to the team situation and attains stability as further exposure occurs or that change is too slow to be revealed in a short-term research investigation.

644. FEIN, Ronald M. The relationship between participation in recreational activities and the attitude toward the use of drugs by students in the secondary school. M. S. in Recreation, 1971. 63 p. (B. van der Smissen)

A participation inventory and an attitude scale (Drug Education Evaluation Scale) were administered to 296 secondary school students from grades 10 and 11. The r was investigated between attitude and participation, with participation assessed in 3 ways: how one participated in a recreational activity, i.e., organized, unorganized; what activities a person participated in; and amount of time (in hrs.) a person participated in an activity. Only a negligible r was found in each r tested.

645. GARDNER, Jerry R Industrial employee attitudes toward the values of industrial recreation. M. S. in Recreation and Parks, 1971. 124 p. (B. van der Smissen)

Twenty-one value components were determined by a literature review. These were subdivided into 2 major categories in relation to how they affected the individual employees and industrial efficiency. A Likert-type rating scale, using a 5-point continuum, was constructed with statements for each value component. The final Industrial Recreation Inventory of 40 statements was administered to employees of 4 companies in Pa. There were 207 participants in industrial REC programs and 164 nonparticipants returning usable inventories. The findings: All employees held positive attitudes toward the values of industrial REC; however, there was a significant difference between the attitudes of participants and nonparticipants on the overall values and the values related to industrial efficiency both among and within the companies, with participants indicating a more intensely favorable attitude. Three employee characteristics affected employee attitudes toward the values of industrial REC: age of the employee, distance he lived from work, and union membership. Employees nearing retirement age (51-65) held a more positive attitude toward the values than did younger (18-35) employees. The closer an employee lived to his place of work, the more positive his attitude was; and, union members held a more favorable attitude toward the REC values than nonunion members. There was no significant difference related to the characteristics of sex, marital status, work-shift, length of employment, income, or children living at home.

646. HERSH, Joyce. The relationship between participation in recreational physical activity and certain personality characteristics in male college undergraduates. M. S. in Physical Education, 1971. 65 p. (E. Hunt, Jr.)

Male undergraduates (N=388) were selected for participation in this study according to the following criteria upon completion of a background questionnaire: single, age 17-22, minimum GPA of 2.00, no physical disabilities affecting participation in physical activity, and not a varsity athlete. All Ss also completed an information sheet providing the number of hrs. of participation per wk. in REC physical activity and other leisure time activity. The Ss were then administered the Taylor MAS and the MPI. The r's between the selection variables, personality variables, and the participation categories led to the following conclusions: participation in REC physical activity and total leisure time activity is related to a limited extent to 3 personality variables. Neuroticism and anxiety are independent (but correlated in a negative direction) of extroversion, while anxiety and neuroticism are highly related.

647. HILL, Lawrence W. Recreational activity benefits to the adult (50-64 years) as perceived by activity theorists and recreational practitioners. M. S. in Recreation and Parks, 1971. 118 p. (B. van der Smissen)

The benefits of REC activity were identified through a review of literature and clustered into 12 components. These components were then submitted to 122 activity theorists and 82 REC practitioners who rank-ordered them according to their perceived importance to the mature adult. Brief justifications for the top 3 and lower 3 rankings were stated. It was found that the differences as hypothesized in the perceptions of the adult activity theorists and the practitioners as to importance of benefits was not substantiated. The 2 groups agreed that communication and companionship (two social benefits) were of the greatest importance, and courage-daring and fantasy-reminiscence were of the least importance. Other benefits included adventure, aesthetics, competition, education, physical exercise, sensations of taste and smell, teamwork, and vicarious participation.

648. HSIEH, Yuan-Chuan. Longitudinal study of physical fitness and motor ability for male students at Tsing Hua University, Taiwan, Republic of China. M. Ed. in Physical Education, 1971. 89 p. (E. A. Gross)

The AAHPER Youth Fitness Test, Larson Muscular Strength Test, Fleishman's Basic Fitness Test, and Barrow Motor Ability Test were given to 417 male undergraduate students at National Tsing Hua University in Taiwan, Republic of China, from 1964 to 1968. Norms for each of the tests were constructed and the comparison of the performances of the same male students were made on the various administrations of the 4 tests. Results of these 4 tests showed that the male students of National Tsing Hua University improved significantly on 6 of 7 items of the AAHPER test, on 9 of 10 items of Fleishman's Basic Fitness Test, and on 2 of 6 items of Barrow MA Test. No significant improvement was found on the 3 items in Larson Muscular Strength Test. Also, a comparison of AAHPER Youth Fitness Test percentile performances of the 417 male students were made with college students of the U. S. Tsing Hua male students exceeded the students of the U. S. in pull-up, shuttle run, standing broad jump, 50-yd. dash, and 600 yd. run-walk; and fell short in the sit-ups and softball throw.

649. KEPHART, Margaret J. The perceptions of senior citizens and college students regarding the recreational activities of the aging. M. Ed. in Recreation and Parks, 1971. 121 p. (B. van der Smissen)

Forty-one aging persons over 65 from both institutional and noninstitutional settings and 42 undergraduate students majoring in REC and parks sorted 60 statements in a self-constructed forced-choice Q-sort pattern. The senior citizens sorted twice, first according to how they perceived themselves in REC participation and second as they perceived that the students viewed their participation. The college students sorted only once, as they saw the senior citizens' participation. Profiles of each of the 3 sorts were constructed, as well as comparisons made among the 3 sorts. It was concluded that senior citizens are more perceptive of the feelings of young adults than is commonly believed; college students display a more permissive response to REC activities than the senior citizens expect them to have; senior citizens expect other groups to view their participation in other ways than they view themselves; and, with modifications, the Q-technique provides an interesting, effective method of obtaining various types of information. Based on the specific findings of the study, some implications for program planning are suggested.

650. LORENZ, Barbara I. The value of a play environment for children before surgery as a method to mitigate behavioral pattern change. M. Ed. in Recreation and Parks, 1971. 139 p. (B. van der Smissen)

Ten surgical patients were selected from 2 hospital settings, 1 with a child-life environment and play program and 1 without a children's play program. The children were observed on 5 critical aspects: at play, medical procedures, hospital personnel, parents, and mealtime. Each child was observed for a period of at least 4 hrs. the day he was admitted to the hospital and for approximately 4 hrs. following his recovery from surgery. Parents were interviewed prior to surgery. On the basis of the findings, it was concluded that a play environment concerned with the physical and emotional well-being of the hospitalized child helps control negative behavioral change; while there was not sufficient data to show that a planned program decreases the amount of anxiety and apprehension a child experiences during hospitalization, there was support to indicate that children in a nonplay environment have greater anxiety and apprehension after surgery than those who have been involved in a play program; and a play environment is effective for promoting acceptance of medication by children.

651. MEISER, Patricia H. The self-perception of intercollegiate field hockey players at the beginning and end of a season of competition. M. Ed. in Physical Education, 1971. 83 p. (D. V. Harris)

Candidates for 4 women's intercollegiate hockey teams (N=120) were administered the Gough Adjective Check List and a hockey background questionnaire at the beginning of the season and the ACL again at the end of the competitive season. Ss were categorized into 3 groups: Group A, teams 1 and 2; Group B, teams 3 and 4; and Group C, those who were cut or voluntarily dropped from contention. Ss who were team members were also analyzed comparing players to substitutes. Results indicated that competing for a position and playing for a hockey team at this level are experiences which will produce changes in one's self-perception. It was also concluded that one's self-perception is important in determining his ultimate status in the competitive situation. Based on the results of the within-group analysis, it was concluded that playing competitive field hockey per se did not produce positive changes in self-perception since all 3 groups evidenced positive changes. Also concluded was that the amount of actual participation in hockey competition is not a determinant in relation to the degree of positive changes in self-perception.

652. O'QUINN, Garland D. The effects of practice upon the activity of antagonistic muscles during the performance of a motor task. Ph. D. in Physical Education, 1971. 82 p. (E. Gray)

It was hypothesized that antagonistic muscles are active during learning of precise motor control, but that as performance improves the level of activity in the antagonist will be greatly reduced. A motor task was designed which included an isometric increment so as to define precisely which musculature was antagonistic to the external force requirement. After practice on the task, Ss exhibited considerable improvement in skill. The antagonistic muscles were active during the learning, and, contrary to expectation, this activity did not diminish with improved skill. The agonists were active at 28.5% of their max. force although only 10% was required external to the limb. The antagonists, while mechanically unnecessary, were active at 16.7% of their max. force. This relationship between agonist and antagonist did not change as a result of practice. It is believed that the feedback from error information which was present even after considerable practice was responsible for the antagonistic activity observed.

653. OSTROM, Thomas J. An analysis of the design and operational components affecting the health and safety of individuals using the bathing facility at Chenango Valley State Park, Chenango Forks, New York. M. Ed. in Recreation and Parks, 1971. 192 p. (F. M. Coombs)

After reviewing standards of different agencies and legal requirements, recommended standards were developed against which the present situation of the bathing facility at Chenango Valley State Park was assessed.

654. PELCHAT, Christian Y. A biomechanical analysis of selected racing starts in swimming. M.S. in Physical Education, 1971. 69 p. (R. C. Nelson)

Cinematographic and film analysis procedures were used to quantify selected biomechanical components of the breaststroke and freestyle starts in 10 varsity swimmers. The angle of body position was the only factor which differentiated the 2 starts. The actual angle of incidence (based on body center of gravity) differed significantly for both starts from the apparent angle of entry as represented by the position of the body. It was concluded that the biomechanics of the freestyle and breaststroke starts are the same.

655. PIANKO, Patricia. Personality traits and self-attitudes of women intercollegiate field hockey players who play either offensive or defensive positions. M. Ed. in Physical Education, 1971. 59 p. (H. M. Lundegren)

The Eysenck Personality Inventory, the Kuhn-McPartland Twenty Statements Test, and a background questionnaire were administered to 53 college women field hockey players. The Mann-Whitney U Test was utilized to make a statistical comparison on the EPI and a t test between Ms was made for the study group and a normative group. Statements on the TST were classified as either consensual or subconsensual. Percentages were calculated for the salience of mention of the first 3 statements, and for the categories on the background questionnaire. There were no significant differences ($p<.05$) between the personality traits of the offensive and defensive players or between the study group and a college normative group. All Ss tended to answer the TST in a similar manner and came from similar backgrounds.

656. ROSS, Mary. The effectiveness of a three-day pre-camp training program for staff in a summer residential camp for physically handicapped children. M. Ed. in Recreation and Parks, 1971. 175 p. (B. van der Smissen)

A full staff training program was developed including precamp materials (staff manual, reading list) and an on-site precamp training program encompassing camper-care skills, camp philosophy, camp routines, health and safety, and other information desirable for staff. In the conduct of the program, handicap simulation and group methods were used. The assessment of effectiveness included understanding of the total program of the camp and of the campers, the skills and insights obtained of the program and of camper care, self-development and staff morale and harmony, teaching techniques and group procedures used. The effectiveness was assessed at the end of the training program, during the season, and at the end of the camp season. The study contains full information on the training program, which was deemed after evaluation to have accomplished satisfactorily its purpose; however, recommendations were made for further improvement of the training program.

657. ROSS, Michael A. The achievement need of select high school competitive swimmers based upon socioeconomic, ethnic, and performance variables. M.S. in Physical Education, 1971. 96 p. (D. V. Harris and J. G. Draguns)

Athletes (N=98) from 5 New York City high school swimming teams were administered the Thematic Apperception Test, Lynn's Modified Achievement Motivation Questionnaire, the Adjective Check List, and a background questionnaire. It was concluded that the need to achieve is not

related to socioeconomic or ethnic variables; swimming performance is related to achievement need, as defined by nonprojective tests; achievement motivation does not vary with environmental situations differentiated by schools; and the nonprojective measures of achievement need are assessing similar qualities, while the projective measure differs from the nonprojective achievement-need measures.

658. SANDUSKY, Gerald A. The effect of football practice on the stability of the knee. M. Ed. in Physical Education, 1971. 69 p. (C. A. Morehouse)

In order to investigate the effect of football practice on the stability of the knee, measures of abduction and adduction of the lower leg were made on varsity football players before and after spring practice. The examinations were conducted on a special apparatus. Group B (N=35) consisted of offensive and defensive backs, receivers, and linebackers. Group L (N=26) consisted of offensive interior linemen, defensive ends, and tackles. An increase in knee stability was found after spring practice. The measures obtained for Group B were similar to Group L, indicating that the increase in knee stability following spring practice was not specific for individual positions.

659. SEETHALER, Lawrence W. The importance of nutrition concepts for junior and senior high school to be taught in the professional health and physical education curriculum. M. Ed. in Health Education, 1971. 45 p. (A. L. Harnett)

Six nutritionists, all members of the faculty at The Pennsylvania State University, rated a list of 13 concepts for JHS and SHS. College health teachers (N=33) also rated the same list of nutrition concepts. Both the nutritionists and the health faculty considered all 13 concepts important. The jury and teachers rated concepts that dealt with wt. control, health maintenance, selection of food, snacking, personal appearance, and body needs higher than concepts which were more impersonal, less specific, and to which no immediate importance to the learner was attached. The higher rated concepts were the ones with which the learner could easily identify and personalize.

660. SIDRER, Ethel. The development of wheelchair athletics in the United States. M. Ed. in Recreation and Parks, 1971. 96 p. (B. van der Smissen)

Through the use of interviews, documentary materials, and questionnaire, information was obtained from the National Wheelchair Athletic Association; associations, clubs, teams, and regional sports groups for wheelchair athletics; Veterans Administration hospitals instrumental in the development of wheelchair athletics; and publications dealing with the disabled. The information was presented under 6 major headings: values of wheelchair sports and athletics, the changing concept of rehabilitation, the influence of the VA, the development of wheelchair athletics on national levels, U. S. involvement in international competition, and development of regional and local organizations. The history presents tables describing the growth of events at the National Wheelchair Games, the participation at the National Wheelchair Games, national records, U. S. standing in international competition, and the chronological development of wheelchair athletics.

661. SIMON, Laura A. The relationship of masculinity-femininity levels and need achievement levels of female athletes and musically competitive nonathletes. M. Ed. in Physical Education, 1971. 100 p. (D. V. Harris)

CPI, the Adjective Checklist, and Lynn's Achievement Motivation Questionnaire were administered to a group of female basketball players

(N=30) and a competitively comparable group of women choral members (N=23). It was found that the athletes had significantly lower femininity levels than the nonathletes. In general, the nonathletes were found to be more achievement orientated than the athletes. No significant relationship was found to exist between masculinity-femininity levels and achievement levels.

662. SMITH, G. Kyle. Cinematographical comparison of the cross-over and open-step techniques for pulling guards in football. M. Ed. in Physical Education, 1971. 50 p. (C. A. Morehouse)
Four varsity football players, all offensive guards from PSU, executed simulated blocking assignments of 6 ft. and 10 ft. in both directions using the cross-over and open-step techniques for pulling out of the line of scrimmage. The data consisted of average trial time, time and distance of the initial and succeeding steps, average initial step velocity, and trunk elevation. A descriptive analysis of data was utilized in the interpretation of all data. The cross-over appeared quicker for the 10 ft. distance in both directions. While the cross-over was also quicker for the 7 ft. distance going away from the down hand, the open-step was faster when going toward the down hand. The initial step velocity for the cross-over also appeared to be greater regardless of the distance or the direction. Under all conditions, Ss appeared to be in a lower running position when using the cross-over step instead of the open-step technique.

663. SODERBERG, Gary L. Investigation of selected electrical, force and time characteristics of the human myotatic reflex. Ph. D. in Physical Education, 1971. 114 p. (C. A. Morehouse)
Selected electrical, force, and time characteristics of involuntary isometric quadriceps muscle contractions were quantitatively analyzed with the assistance of an on-line computer. A specially constructed pendular hammer elicited the myotatic reflex while quadriceps electrical activity and force at the ankle were recorded. Testing at threshold and suprathreshold levels of applied force was completed with Ss (N=15) in a relaxed sitting position. Reliabilities and the relationships of the measures were determined, and consistency of the measured response variables was examined. The threshold level electrical and time variables were not sufficiently reliable between days to justify further computations. Reliable measures between days were obtained for the force variables at the threshold level of testing and for all of the variables at the suprathreshold level. The electrical and force measures had a high positive r when correlated with the other electrical or force variables, but intercorrelations of electrical with force variables produced r's that ranged from moderately high positive to 0. Differences were exhibited in the times to produce peak forces at both levels of applied force. The analysis of force-time curves showed that the time to point of inflection and time to peak force were more consistent measures than the tangent angle at the point of inflection.

664. SPIETH, William R. Skill level and adaptation to a rearranged visual environment. Ph. D. in Physical Education, 1971. 138 p. (E. A. Gross and H. W. Leibowitz)
The amount of adaptation to a rearranged visual environment was investigated on the basis of skill level. Two groups (high and low) of 30 students each were formed on the bases of previous experiences in sports and games during specified developmental growth periods and on a battery of 4 motor-ability tests. The subjects were tested before rearrangement and then immediately following rearrangement (upon wearing prism glasses). Amounts of adaptations were obtained as Ss then performed two motor skill tasks under either a controlled or noncontrolled movement condition. Upon completion of these tests, the prism glasses were

removed and a test for compensation to rearrangement was made. Groups were compared on the amount of adaptation to rearrangement and the amount of adaptation dependent upon the type of movement condition and type of motor task. It was concluded that the level of skill, type of movement condition, or type of skill task had no effect on the amount of adaptation to rearrangement of a visual environment.

665. SPRINGER, Larry K. Comparison of three scoring methods using two different skills of accuracy. M. Ed. in Physical Education, 1971. 44 p. (C. A. Morehouse)

Accuracy skills of dart throwing and golf putting were used to obtain improvement scores in high, average, and low skilled individuals. Initial scores for 67 Ss were determined in each skill by calculating the mean scores of the first 3 days of participation. The Ss were then ranked on the basis of these pretest scores. After 4 practice days, scores from 3 daily sessions were totaled and divided by 3 to derive a M score for each S in each skill, which was the posttest score. Improvement was calculated by determining the difference between pre- and post-test Ms, the % gain of the max. possible gain, and the % gain of the initial score. Each S was then ranked on the basis of each improvement score. A correlated t test indicated that all skill levels improved in their ability to perform the skills. Spearman-rho rank difference r's indicated little difference among the scoring methods. Low skilled individuals showed the most improvement in raw scores, while both the % gain methods favored the high skill levels, with the exception of those low skilled individuals who made a relatively large raw score improvement.

666. TERRIBILE, Rosemary. A basketball skills test for college women. M. Ed. in Physical Education, 1971. 56 p. (J. Nessler)

An experimental basketball skills test and the Harpster Ball Handling and Shooting Test were administered on 2 successive class periods to 57 women students enrolled in a beginning basketball course. All Ss were rated on game play by 3 judges. The test-retest method was used to compute the reliabilities of the skills tests. The validity coefficients were established by correlating objective test scores from the first day of testing with the sum of the judges' ratings of game play. The experimental basketball skills test yielded a .84 reliability r and a .61 validity r (based on the sum of the best 3 trials out of 4). The Harpster Ball Handling and Shooting Test had a .76 reliability r and a .57 validity r (based on the sum of the best 2 out of 4 trials). The experimental basketball skills test was administered to varsity and junior varsity women basketball players. The experimental basketball skills test discriminated between inexperienced players and experienced players ($p<.05$).

667. THOMPSON, James G. Sport, athletics, and gymnastics in ancient Greece. Ph. D. in Physical Education, 1971. 135 p. (Borza and Gross)

This study begins with the late Minoan-Mycenaean Bronze age (ca. 1500-1000 B. C.); then analyzes in a combined chronological and topical form the following eras: Dark Ages (1000-750 B. C.), Archaic period (750-500 B. C.), Classical period (500-404 B. C.) and the 4th century B. C. Blended into the narrative of this thesis are the historical events and important contributions of individuals who fall within the scope of this investigation. This social-historical study is designed to convey to the reader not only information germane to sport, athletics, and gymnastics, but also to describe the tenor of the times and the mood of the periods researched in Greek antiquity, a civilization that held various forms of

physical activity in high esteem. As philosophers and warriors, the Greeks of antiquity cultivated sport, athletics, and gymnastics for their health-giving value and their preparation for combat. They also used these important institutions as peaceful alternatives to combat.

668. WOLFF, Billie. Usefulness of printed outdoor education materials for the elementary school teacher. M. Ed. in Recreation and Parks, 1971. 142 p. (B. van der Smissen)
An outdoor education handbook of printed materials designed conceptually in 3 subject matter areas (language arts, map and compass, soils) was distributed to ele. school teachers either at in-service meetings or through the mail. Value of the material was assessed through questionnaires. Analysis included differences between primary and upper ele. school teachers in accord with different concepts and activities presented in the 3 areas. The influence of the background of the teachers was also determined, including formal training in outdoor education and science, magazines read, memberships held, and camping experience.

Purdue University, West Lafayette, Indiana (C. J. Widule)

669. MATHES, Sharon Ann. Social stereotyping of body image and movement orientation. Ph. D., 1972. 203 p. (M. Clifton)
First, 3rd and 6th grade boys and girls (N=180) were investigated for the influence of physique, sex, and grade on social stereotyping of body image, perception of movement orientation, and perception of physique. Tests administered were social stereotyping of body image, body attitude, physique accuracy, physique preference, physique aversion, movement orientation (others), and movement orientation (self). Social stereotyping varied significantly as a function of grade, but not physique or sex. Body attitude varied significantly as a function of grade, but not physique or sex. Movement orientation assigned others did not vary significantly by grade, sex, or physique. Movement orientation assigned self differed significantly by grade, but not by sex or physique. Mesomorph Ss were found to be more accurate in assigning a physique rating to self. All groups preferred to look most like the mesomorph.

670. PRATT, Peggy A. Influence of social class position on expressed purposes for seeking physical activity and on participation in and preference for selected movement forms. M. S., 1971. 78 p. (C. A. Oglesby)
SHS girls (N=71) participated and Hollingshead's Two Factor Index of Social Position scale was used to differentiate the 29 middle class Ss from the 42 lower class Ss. Kenyon's Attitude Toward Physical Activity scale was utilized along with E's own instrument for determining the Ss extent of participation in and preference for selected movement forms. A list of 18 common movement activities was devised and movement forms were separated into 3 groups: movement forms more preferred by middle class; movement forms preferred by lower class; and movement forms preferred by both social classes. The t tests revealed no statistical difference ($p > .01$) between classes as to their purposes for seeking physical activity. Middle class Ss both participated in and exhibited a higher preference for group 1 (middle class) oriented movement forms. No significant differences existed between the classes in group 2 or 3 movement forms. The middle class Ss appeared to have an access to all the movement forms included in the study, while the lower class Ss had apparently been systematically excluded from others.

671. SMITH, Rebecca S. Color-form preference as shown by young children on a match-to-sample task. M.S., 1970. 62 p. (H. M. Smith)

672. STATHIS, Constance. The effects of positive or negative verbal feedback on one's movement concept, self-estimate, and performance of a gross motor task. M.S., 1971. 94 p. (H. M. Smith)

University of Rhode Island, Kingston, Rhode Island (R. Sonstroem)

673. BIXBY, James. Physical fitness and self-estimates of physical ability in high school males. M.S. in Physical Education, 1971. 56 p. (R. Sonstroem)

The Fleischman Basic Physical Fitness Test was administered to 54 males, grades 10 - 12, after they had completed the Physical Activity Attitude Inventory (self-estimates of physical ability) and the Index of Adjustment and Values (self-esteem). Subsequently, fitness report cards were distributed. After 6 wks. the 54 males were retested on the PAAI and the IAV. Persons with a fitness index ranking at the 60th percentile for the school or higher increased self-estimates of physical ability from test 1 to test 2 but not significantly as hypothesized ($t = .08$). Persons with a fitness index ranking at the 40th percentile for the school or lower decreased self-estimates of physical ability from test 1 to test 2 but not significantly as hypothesized ($t = .55$). While fitness indices were not significantly related to self-esteem, r's between self-estimates of physical ability and fitness indices were .45 and .52 for the two testings, respectively. Self-estimates of physical ability were significantly related to self-esteem ($p < .05$). The study provided a measure of validity for the revised PAAI scale.

674. MAIO, John R. Prediction of high jump performance from certain body size, strength, and neural measurements. M.S. in Physical Education, 1971. 50 p. (R. Sonstroem)

Male undergraduates electing a track course within the university service program were used as Ss (N=34). Ss had no previous experience at high jumping and were given only brief, standardized instructions during the exp. The following predictor variables were employed: leg RT, leg MT, arm and leg explosive strength, transverse center of gravity, ht., and wt. Significant r's ($p < .05$) with the high jump were found for shuttle run ($r = .70$), softball throw ($r = .64$), leg MT ($r = .37$), and leg RT ($r = .30$). Height and center of gravity had r's with high jump performance of only .19 and .11, respectively. Prediction equations were formed in a stepwise fashion based on size of the zero-order r's. The optimal prediction equation was found to consist of the shuttle run and softball throw ($R^2 = .578$). Utilization of all study predictors produced an R^2 of .627. ANOVA indicated that this was a nonsignificant contribution to the shuttle run and softball throw in predicting high jump performance. The study served to emphasize the importance of explosive strength measures as components of high jump performance in the novice jumper.

675. OGUNMAKINDE, John O. Testing for the prediction of performance in the long jump and in the one-hundred yard dash. M.S. in Physical Education, 1971. 68 p. (R. Sonstroem)

A short battery of inexpensive tests not requiring extensive space was formulated to predict long jump and 100-yd. dash performance. Included were measures of explosive strength (Fleishman shuttle run, softball throw), body dimensions (elbow width, knee width, chest circumference),

and finger RT (Nelson Reaction Timer). Subjects were 34 male university undergraduates with no previous track experience. The shuttle run proved to be the most significant single predictor of performance in the long jump and 100-yd. dash ($r = -.81$ and .83, respectively). Utilization of all study variables as predictors increased these multiple r's to .84 and .86, respectively, nonsignificant increases by ANOVA. The r between dependent variables was -.80. With the exception of finger RT, test-retest reliabilities for all variables were high, ranging from .85 for the long jump to .96 for chest circumference. Shuttle run reliability was .89.

676. PULLEN, Franklyn J. The relationship between physical ability and self-attitudes in white and black boys. M.S. in Physical Education, 1971. 46 p. (R. Sonstroem)

Since blacks apparently have fewer economic and social successes upon which to establish favorable self-concepts, it was hypothesized that r's between physical fitness and self-esteem and between fitness and self-estimates of physical ability would be higher in blacks than in whites. Groups (N=37 each) were formed out of 150 4th and 5th grade boys by matching individuals within grades on income per family member. They were administered Coopersmith's Self-Esteem Inventory and an inventory assessing self-estimates of physical ability. Two wks. later they were given 4 items (bend-twist-touch, shuttle run, hand grip, cable jump) of the Fleishman Basic Physical Fitness Test. Differences between group Ms on study variables were not significant. The r's between fitness indices and the psychological measures were generally positive. Differences in r's between groups were in the hypothesized direction but were not significant.

677. SELEEN, Diane R. Comparison of attitudes toward physical activity and volleyball skill of college women. M.S. in Physical Education, 1971. 42 p. (R. Polidoro)

Comparisons and relationships between volleyball skill performance and attitudes toward physical activity were made among 3 groups of college women (N=57). Volleyball skill was measured by a high wall volley test. Attitudes toward physical activity were determined by Kenyon's Attitude Toward Physical Activity Test, Form D, College Women. An intercollegiate volleyball group was found to have a significantly greater level of skill than an intramural group ($p<.05$) and a basic volleyball service group ($p<.01$). The level of skill of the intramural group was significantly greater than the skill level of the basic service group ($p<.01$). The intercollegiate group was found to have a significantly more favorable attitude than the basic service group ($p<.01$). The intramural group was found to have a significantly more favorable attitude than the basic service group ($p<.05$). No significant r's between skill performance and attitudes were observed. An r of .32 ($p<.05$) was observed when the total N was analyzed. The data imply a significant relationship between volleyball skill and attitudes toward physical activity.

Sacramento State College, Sacramento, California (D. R. Mohr)

678. ARP, Fredric A. The Athletic Motivational Inventory as a basis for selection in football. M.A. in Physical Education, 1971. 69 p. (D. R. Mohr)

This study sought to obtain evidence pertaining to the ability of the Athletic Motivational Inventory to distinguish successful from nonsuccessful football players who were similar in physical characteristics. Ss were 30 college varsity football players. The testing instrument was developed

and scored by Ogilive and Tutko, and a battery of physical performance tests was used to measure the physical characteristics. The hypothesis that the high ability, high physical attribute group was significantly different from the low ability, high physical attribute group, as measured by the AMI, was supported for the traits of aggressiveness and mental toughness. The hypothesis that the high ability, low physical attribute group was significantly different from the low ability, high physical attribute group was rejected for all of the traits measured. The hypothesis that the high ability, high physical attribute group and the high ability, low physical attribute group were not significantly different was supported for all of the traits measured.

679. BAKER, Robert. An analysis of injuries to Seventh-Day Adventist Academy students from September 1967 to June 1969. M. A. in Physical Education, 1971. 129 p. (A. A. Bates)

Injuries to 9,919 students in 21 Seventh-Day Adventist Academies in the Pacific Union Conference were studied to provide an analysis that could be used to help in formulating guidelines for a safety program suited to the needs of the Academies. Data were obtained from the files at the West Coast office of the General Conference Insurance Service. The information was coded in the manner suggested by the National Safety Council and then analyzed by computer. Injuries to boys were more frequent and more severe than to girls. The most hazardous months were September and October, and sprains or strains were the most common types of injuries. The part of the body injured most frequently was the hand (fingers or thumb). The most hazardous activity for boys was touch or flag football and for girls, basketball. Boys had a higher percentage of injuries in team sports, while girls had a higher percentage during individual activities.

680. BECKER, Charles P. A chronology of the changes in major league baseball pitching rules. M. A. in Physical Education, 1971. 172 p. (H. H. Wolf)

This historical study traced the changes in pitching rules in the major leagues from the earliest beginnings of the sport to the 1971 season. Data were gathered from rule guides, periodicals, newspapers, books, related historical studies, and correspondence and interviews with authorities on baseball. Evidence suggested that baseball rules evolved over a period of many years and were used as a means by which a balance between offense and defense in the game could be maintained. It was indicated that the greatest balance could be effected by altering the rules governing the relationship between the pitcher and batter. Evidence further suggested that rule changes were influenced by the promotional ideas of club owners and by the attitudes of baseball spectators.

681. BOWLES, Patricia H. The evolution of the archery release technique. M. A. in Physical Education, 1971. 134 p. (D. R. Mohr)

The archery release technique was traced from the first recorded one to the present. Basic techniques of release were selected from various parts of the world, and the variances in style were noted. Each technique was identified with a period of time, and with a type of equipment. The data were gathered from local, school, and private libraries. Correspondence and interviews provided dates and descriptions not found in other sources. It was concluded that the Mediterranean release evolved directly from the primary method, following through the secondary and tertiary releases. The Mongolian release is believed to be the original method in its native Asia.

682. CLARK-HACKETT, Delores S. A survey of drug education teachers of grades seven and eight in California Public Schools. M. A. in Health, 1971. (F. B. Benell)

Emphases in this investigation were on the teacher's role and preparation in the area of drug education. Questionnaires were sent to 3 groups selected by random sampling: 111 persons responsible for supervising drug education; 280 classroom teachers of drug education; and 19 persons selected from the Regional Team Roster of the State Drug Education Training Program. It was found that the majority of school districts was making an effort to teach drug education but some of these programs were still in the developmental stages. Some school districts included drug education in teacher assignments, in-service workshops, and curriculum guides. Less than half of the teachers involved in drug education had undergraduate or graduate preparation in this area. These teachers tended to have 4 or more years of teaching experience, and most of them had a major or minor in science. There was an expressed need for help in curriculum development and for reliable sources for use in the classroom. It was felt that the ability to relate to students was as important as adequate preparation in the subject of drug education.

683. CRACRAFT, Joe D. A basketball bibliography of books, selected periodical articles, unpublished theses and dissertations, and films produced from July 1, 1957 through June 30, 1968 including annotations and comments on selected materials. M. A. in Physical Education, 1971. 430 p. (H. H. Wolf)

Materials reviewed for this bibliography included articles from selected periodicals, books, unpublished materials and films. For articles, the sources were Education Index, Athletic Journal, JOHPER, Recreation Management, Research Quarterly and Scholastic Coach; for unpublished materials, Completed Research in HPER; and for films, Educator's Guide to Free Films, Mountain Plains Education Media Council Joint Films Catalogue and numerous other film catalogues. Selected periodicals constituted 795 of the entries, with Athletic Journal and Scholastic Coach contributing over 95% of the articles. Most of these were concerned with offensive patterns and fundamentals. The least represented areas were health practices, intramurals, players, and rules. Physiology and shooting were the major concern of the unpublished materials; of least concern were psychology and equipment. Most of the published research appeared in Athletic Journal and Research Quarterly. Over half of the films emphasized fundamentals.

684. DEMETRAK, Keith L. A study of visitor use at California state parks. M. S. in Recreation Administration, 1971. 98 p. (J. R. Needy)

The problem was divided into 4 subproblems. What were the current data and trends regarding visitor use? What planning guidelines could be developed from the analysis of these data? What problems are encountered in conducting studies of this nature? What recommendations could be made regarding the use of data collected in this study and future studies? The recreation survey polls were conducted by personal interviews. It was found that out-of-state visitation to the parks averaged 10%. The most frequent length of stay for day users was 1 hr. or less, but the average was about $2\frac{1}{2}$ hrs. Campers most frequently stayed 2 nights but averaged 4 nights. There was an average of 4 people per day-use party and 5 people per camp party. The survey showed that the interpretive programs were very popular with park visitors, and that the visitors desired more recreation opportunities within the parks; they tended to seek areas outside of the parks to satisfy their recreation desires if opportunities were not available in the parks.

685. DUNLAP, Robert O. The development of a youth activities manual for the United States Air Force Logistics Command. M. A. in Physical Education, 1971. 334 p. (J. R. Needy)

This manual was developed to serve as a guide to personnel responsible for the conduct and administration of the youth activities program of the Air Force Logistics Command. From an analysis of the literature, a tentative list of current principles was developed and presented in the form of representative summary statements. These were included in a pilot study that was sent to 52 installations within 4 selected major Air Force commands. A combination checklist-attitude scale and questionnaire was developed from the results of the pilot study. Then this questionnaire was sent to the administrators of youth activities programs at bases within the Air Force Logistics Command. The manual was then developed from these sources.

686. FENWICK, Patrick P. The recreation interest of high school students in the Citrus Heights Recreation and Park District. M. A. in Recreation Administration, 1971. 130 p. (J. R. Needy)

This survey sought to answer these questions: What were some of the factors which influenced the amount of free time available to SHS students in the Citrus Heights, California, area? What were some of the recreation interest areas of these students? In what specific recreation activities did the students prefer to participate? Approximately one-third (463 students) of the total student body in the 10th, 11th and 12th grades at San Juan High School participated in this survey-questionnaire study. It was learned that most students had ample free time throughout the school week to participate in recreation activities. The most popular recreation areas for boys were sports, social activities, and quiet activities. The girls preferred social, quiet, nature, outing, and hiking activities. The most popular individual activities for all students were listening to records, listening to the radio, and going to movies. Very little interest was shown in hobbies, collections, or performing arts.

687. HOLM, John L. An analysis of the objectives of selected senior citizen recreation centers in northern California. M. S. in Recreation Administration, 1971. 186 p. (E. H. Sato)

In order to develop desirable principles for the operation of senior citizen recreation programs the objectives of the recreational professionals, their agencies, and the aged participants were investigated. Information was obtained from a review of literature, professionals in the field, an examination of senior citizen centers, and a questionnaire sent to participants. It was concluded that successful objectives reflect the individual's objective and the standards of recreation objectives. The director's personal judgment has a strong effect on the program. Objectives of the senior citizen tend to be motivated by ego-gratification. Center directors are sensitive to the needs of senior citizens, but primarily to those who express their needs.

688. IRWIN, Thomas H. A history and chronology of the modern Olympic Marathon. M. A. in Physical Education, 1971. 120 p. (H. H. Wolf)

This study traced the origin and development of the Olympic Marathon Race from 1896 through 1968 to obtain evidence of the importance of such an event as the Battle of Marathon and its related importance for the Marathon Race. The research was limited primarily to sources written in English available through local libraries. Translations were limited to works completed in Italian, German, French, and Greek. Evidence was found of an ancient long-distance runner, but the name of the messenger-runner from the Battle of Marathon to Athens has not been verified. Ancient writers have contributed many different names, but there is support for the assumption that there was a mythical runner who delivered the Athenian victory message to Athens from the Battle of Marathon. The death of this runner after the victory announcement was

not verified. The modern Olympic Marathon was created by the French philologist Michael Breal for the sole purpose of reviving the ancient myth of the messenger-runner. The Olympic Marathon was conducted for the first time on April 10, 1896, at the first Modern Olympic Games, Athens, Greece.

689. MANFREDI, Alfred J. A brief history of the zone defense in men's intercollegiate basketball. M. A. in Physical Education, 1971. 79 p. (H. H. Wolf)

This study investigated the history of the zone defense in men's intercollegiate basketball within the U. S. from the origin of basketball in 1891 through the year 1969. The sources included selected articles in Scholastic Coach and the Athletic Journal, books and other publications, interviews and correspondence with selected persons. It was learned that zone defenses have been an integral part of basketball since 1914. Certain trends have revealed that the use of zone defenses had high and low points in terms of popularity. Perhaps 2 rule changes were influential factors in favoring the use of zone defenses. The first was the 3-sec. rule, which was introduced to remove the advantage of the stationary tall player. The second was the widening of the free throw lane from 6 to 12 feet. It was recommended that additional historical research be conducted on the man-for-man defense, to complement the present study.

690. MUNGAN, Paul R. A history of the recreational development at Lake Tahoe and its effects upon the environment. M. A. in Physical Education, 1971. 97 p. (H. H. Wolf)

Over the past 100 years, man's destructive land use policy has been the major cause of Lake Tahoe's scenic deterioration. Few areas in the world of such unique natural beauty have undergone such rapid development with little or no coordinated planning. This historical study traced the recreational development of Lake Tahoe from 1900 to 1970 while indicating a parallel increase in the ecological disturbance of the Lake. The year 1900 was used as a starting point because it marks the beginning of the resort era at Lake Tahoe. Most of the data were found in the California State Library Historical Section and included books, periodicals, government documents, newspapers, personal interviews, and letters. The most important sources of primary information were government documents. It was concluded that Lake Tahoe has suffered some very real ecological damage, partly as a result of the last 70 yrs. of recreational development. It is predicted that this plight will continue indefinitely unless a change in philosophy occurs concerning the necessity of certain types and quantities of recreational development needed at Lake Tahoe.

691. PREWITT, J. Garlon. A survey of the disciplinary procedures used by boys' high school physical education teachers. M. A. in Physical Education, 1971. 54 p. (D. R. Mohr)

The data were obtained through questionnaires sent to a random sample of male PE teachers throughout California, with returns from 167 men. The study attempted to discover the types of disciplinary procedures used by these teachers, the frequency of use of such measures, and if actual course content was the most commonly used punishment medium. Evidence was obtained to support the hypothesis that most PE teachers used disciplinary procedures less than 3 times a wk. A second hypothesis stating that course content (running laps, push-ups, etc.) was the most frequently used disciplinary procedure was not supported by the data in this study.

692. SILVERTON, Julie K. Selected health and safety knowledges and beliefs resultant from a paramedical vocational training program. M. A. in Health Science, 1971. 93 p. (F. B. Benell)

This study investigated health behavioral changes of nurses aide trainees of low socioeconomic class following a 24-wk. course in a general hospital setting, and evaluated the efficacy of the adult health education methods utilized in this training program with the goal to effect improvements in reaching trainees of low socioeconomic background. Data were derived from the utilization of the instrument devised for this study in a pretest and retest given to 81 Ss. Conclusions reached through statistical evidence were that exposure of low socioeconomic nurse's aide trainees to a continuous coordinated program of adult health instruction effected significant changes in the cognitive and effective domains in the fields of nutrition, environmental health and safety, and communicable disease prevention.

693. SWEARINGEN, Roger K. An analysis of the policies and practices related to extra services in selected high school districts in California. M. A. in Physical Education, 1971. 117 p. (A. A. Bates)

This study dealt with extra service in conjunction with salary schedules and teacher assignments in the selected schools. Data gathered were obtained through responses to a questionnaire and written policy statement returned by the school districts. There was no significant correlation found between the amount of extra service compensation and the number of hours required to perform such services. The rate of such compensation was significantly less than that stipulated in the regular salary schedule. It was discovered that all teachers were not compensated uniformly for performing like services under similar circumstances.

694. TOBIAS, Stephen D. A history of the development of the American football uniform. M. A. in Physical Education, 1971. 142 p. (H. H. Wolf)

This study related the development, growth and changes in uniforms and the materials used in them from 1869 through 1969. Sources included official publications, yearbooks and football rule guides, correspondence with all major sporting goods companies, and visitations to places of football importance. It was discovered that the effectiveness of the American football uniform improved steadily during these 100 years, influenced by the growth of science and technology. The National Rules Committee, through its legislation, and men such as Walter Camp, Amos Alonzo Stagg, and John Heisman all contributed to the development of the uniform. Although the development of the uniform was rapid, acceptance by participants was slow.

Slippery Rock State College, Slippery Rock, Penn. (R. N. Aebersold)

695. CIPRO, Victoria V. A comparison of the time factor utilized in mass rapid hearing screening method and the individual hearing screening method in administering pure-tone air conduction audiometry. M. Ed., 1971. 52 p. (R. F. Whaley)

Mass rapid hearing screening tests were administered to 199 ele. school children. Individual hearing tests were administered to 197 ele. school students. The M of the total testing time (preparation and testing time), SD, and t scores were computed for each group. No difference was found in the time spent on either method of administering pure-tone air conduction audiometric tests to ele. school children.

696. ELBERTY, Harry. Acquisition of skill in flight balance related tasks between educable mentally retarded and normals through

the individually prescribed instructional system. M. S. in Physical Education, 1971. 54 p. (D. M. Auxter)

Ten educable mentally retarded children and 10 normal children were matched on initial entry placement levels in hierarchical structured sequential program of flight balance tasks. Individual prescriptions were written to move each student at his rate through a self-instructional, self-evaluative program. There were no significant differences in the rate of learning between the mentally retarded and normal children ($p>.05$). Students in each group entered the program at different levels and progressed at different rates.

697. GARGASZ, Ronald E. Guidelines for evaluation of environmental (conservation) education curricula. M. Ed. in Environmental Education, 1971. 73 p. (C. C. Chase)

Guidelines for evaluation of environmental (conservation) education curricula were developed as a result of criteria selected from a questionnaire by environmental education authorities. This instrument was tested in a myriad of environmental settings including ele., junior, and SHS. In every test situation the instrument was voted a very useful device for evaluation of environmental education curricula.

698. MELVILLE, Donald S. A comparison of the acquisition of badminton skills of college students between the individually prescribed instructional system and a traditional method. M. Ed., 1971. 57 p. (D. M. Auxter)

Two groups of 20 college students were compared on the rate of acquisition of badminton skills as measured by hierarchical structural sequences of skills. One group was instructed through the individually prescribed instructional system (IPI) and the other group through traditional methods. Badminton hierarchical skill programs, the smash, serve, clear, and drop shot were implemented for the (IPI) group. The other group was taught by traditional methods. Each member of each group was pre- and post-tested as measured by the hierarchical structure badminton sequences. After 15 10-min. practice sessions by each group there were significant differences in units gained in the clear, serve, and drop shot in favor of the group using the IPI ($p<.05$).

699. RUNAC, Mark. Acquisition of skill on motor awareness related tasks between kindergarten children and primary mentally retarded children through individually prescribed instruction. M. Ed., 1971. 65 p. (D. M. Auxter)

Sixteen normal children were compared to 16 primary educable mentally retarded children of comparable initial entry levels in a hierarchical structured program of motor awareness. The programs were conducted through the Individually Prescribed Instructional system. After 18 sessions of activity no significant differences were found ($p<.05$) in the amount of learning between groups in the hierarchical motor awareness structure program.

700. SLAUTTERBACK, Louis M. Physical education in the elementary schools of the county seats of Pennsylvania. M. Ed. in Health and Physical Education, 1972. 61 p. (W. L. Herman)

Selected ele. schools of Pennsylvania were surveyed by questionnaire in the school year 1971-1972. The survey included the following areas: the program, the teacher, equipment, supplies, facilities, and the intramural and interschool program. Based upon the information collected in this study, the following conclusions were made: the majority of school systems had both a director of PE and some type of ele. PE program; the programs usually included grades K-6; PE classes were held twice a wk. in most cases; PE meets in addition to the regular

recess period; boys and girls meet together for PE classes; the specialist in most instances teaches PE; the majority of specialists were males; most classes are held in multi-purpose rooms; and more school systems have intramural programs than have interschool programs.

701. WHITE, Charles. Acquisition of lateral balance between trainable mentally retarded children and kindergarten children in an individually prescribed instructional program. M. Ed., 1971. 68 p. (D. M. Auxter)

Thirteen trainable mentally retarded and 20 kindergarten children of comparable initial entry level as measured by a hierarchical structured sequential program were compared in acquisition of skill in static and dynamic lateral balance. After 11 activity periods, 3 trials in each program, each period, there were no significant differences in the rates of learning between trainable mentally retarded and kindergarten children on the static balance program. However, there were significant differences in favor of the kindergarten group, ($p<.05$) in the dynamic balance program.

Smith College, Northampton, Massachusetts (L. K. Vaughan)

702. BEHNE, Sheryl. The effect of mental practice on initial performance and throughout the learning period of a novel motor task. M. S. in Physical Education, 1971. 31 p. (E. E. Way)

The most efficient spacing practice schedule for improved performance on a novel motor task was sought by determining the effect of mental practice prior to use of the pursuit rotor; the relationship between mental practice and physical performance in differing proportions of practice time; and the effect of undirected mental practice and the Stroop Color Task upon physical performance when spaced between use of the pursuit rotor. Three exp. and 3 control groups were selected from 120 undergraduate college women. Trend ANOVA revealed that the spaced undirected mental practice and Stroop Color Task were significantly superior to massed practice in achieving higher performance levels on the rotor. Except in 1 instance, mental practice prior to the use of the pursuit rotor made no significant difference to performance either on the first trial or the total score. Learning trends did not differ significantly between any of the groups.

703. BLANK, Anita M. A cinematographical analysis of the overhead clear stroke in badminton. M. S. in Physical Education, 1971. 63 p. (P. D. Downie)

Sixteen mm B/W film was used to photograph the clear stroke performance of 3 undergraduate women who participated in the 1971 DGWS National Intercollegiate Badminton Championship. Analysis of the Ss' movement revealed that although the gross motor patterns were similar, individual variations existed in the backswing motion, forward motion of the racket arm, and follow-through action.

704. CORBELETTA, Susan P. The relationship of dynamic balance and strength to selected balance beam moves. M. S. in Physical Education, 1971. 48 p. (E. E. Way)

Undergraduate college women (N=23) enrolled in beginning gymnastics classes were rated on their performance of a front scale, V sit, backward shoulder roll, and forward roll. The Bass Stepping Stone test and a stabilometer test were selected as measures of dynamic balance. Chin-ups, leg lifts, and a leg raise test were included as tests of strength. By r no significant relationships were found between

performance on the balance beam and the independent, or combined, balance and strength tests. Furthermore, the relationship between the 2 balance tests was not significant.

705. FLYNN, Kathryn. A study of the difference between riding ability groups in kinesthetic test performance. M. S. in Physical Education, 1971. 57 p. (E. E. Way)

Five tests of kinesthesis were administered to college women (N=33) who represented intermediate and advanced levels of riding ability. Tests for arm positioning, lower leg positioning, pronation-supination, force reproduction and size discrimination were administered. No significant differences were found between the 2 groups in the measure of pronation-supination, lower leg positioning, or force reproduction. The advanced group was superior ($p<.01$) in the ability to position the arms but was inferior ($p>.05$) in size discrimination.

706. FRANKLIN, Nancy L. The effects on game play of changes in softball pitching distance. M. S. in Physical Education, 1971. 67 p. (J. A. Mott)

The softball pitching distance was changed from 38' to 40' in 1966. Data obtained during 1965 and 1966 from 2 teams in the New England Women's Yankee League and 8 teams of SHS girls revealed that the 2' change in distance did not affect either the batting average or the no. of stolen bases recorded by either group. The league teams, however, recorded significantly less numbers of runs during the 1966 season. Fifty SHS were administered a test for pitching speed and accuracy. ANOVA revealed that as the pitching distance increased from 35'-42' a steady decrease occurred in the pitching speed. In addition, when the distance was increased by more than 4', pitching accuracy diminished.

707. FRITSCHE, Linda L. The effect of various cueing devices upon the learning of a specific motor pattern by four- to five-year-old children. M. S. in Physical Education, 1971. 58 p. (P. D. Downie)

Fifteen Ss were selected from the Smith College Pre-School and divided into 3 test groups according to age and sex. Each group received 8 15-min. teaching sessions during a 4-wk. period. A motor pattern, reproducible on the floor, was specifically designed for the study. The t for uncorrelated M revealed that the motor pattern was learned most quickly (3.5 days) through the use of demonstration-verbal cues ($p<.01$). Similarly, demonstration-verbal cues and verbal cues alone were judged to be superior techniques when the proficiency of the final performance of the motor pattern was rated. The least effective cueing technique used in the study was demonstration.

708. HALL, Linda K. The development of a series of instructional film loops for cross-country skiing. M. S. in Physical Education, 1971. 76 p. (E. E. Way)

Six colored super-8 mm film loop cartridges with script were produced. The loops were designed for use by beginning and experienced skiers and included the following techniques: single pole, change-up, double pole, up and down hill run, and hill change-up.

709. HUNTER, Martha J. An analysis of the skills and techniques used in an official and experimental game of women's basketball. M. S. in Physical Education, 1971. 57 p. (P. D. Downie)

Two films, 1 of a 6-player and the other of a 5-player game, were analyzed. After determining the % of passes and shots at goal, no significant difference was found between the no. of times that the following passes (hook, 1-hand bounce, 1-hand shoulder, 1-hand underhand and

2-hand bounce) and shots (hook, jump and overhead set) were used in either game. The 2-hand chest pass, 2-hand underhand pass and 1-hand set shot were used more frequently in the 6-player game, while the 2-hand overhead pass, the jump pass, the lay-up shot, and the 2-hand set shot were used more often in the 5-player game. X^2 revealed no significant difference in the number of intercepts, dribbles, jump balls, rebounds, turnovers, violations, or fouls used in either game.

710. KEYSOR, Karen S. The development of a series of instructional film loops for high intermediate and advanced canoeing. M.S. in Physical Education, 1971. 55 p. (P. D. Downie)

Six colored super-8 mm film loop cartridges with script were produced. Solo strokes were selected from American Red Cross resources and included the following: various paddling positions; J stroke; reverse J stroke; stationary draw and pushover; forward sweep, inside and outside pivot turns.

711. KURAUSKI, Patricia A. The attitudes of married and unmarried undergraduate women toward intensive competition for girls and women. M.S. in Physical Education, 1971. 76 p. (P. D. Downie)

The Harres Attitude Inventory and a background questionnaire were administered to 115 married and 156 unmarried women. ANOVA revealed no significant difference between the inventory scores of the 2 groups in the attitude expressed toward intensive competition for women. The r indicated that the inventory responses were affected by the Ss age and participation in athletic competition. When ANOVA was used to analyze background information obtained from the Ss, significant differences between the 2 groups in age, yr. in college, religious affiliation, and level of father's education were found.

712. McDOUGAL, Susan J. The development of a series of instructional film loops on beginning riding techniques. M.S. in Physical Education, 1971. 95 p. (E. E. Way)

Four B/W super-8 mm film loop cartridges with script were produced The content was as follows: exercises for riders; preparation of the girth, stirrups and reins; mounts and dismounts; walk, with variations; trot and canter.

713. SCOPINICH, June. The effect of detraining on cardiorespiratory endurance in female high school basketball players. M.S. in Physical Education, 1971. 54 p. (P. D. Downie)

Twenty-one Ss were administered the Skubic and Ryhming step tests once each wk. for 6 wks. following completion of the basketball season. Although no significant differences were found between the HR responses of the Ss on either test, consistently significant increases in HR were recorded during min. 1, 2, and 3 of recovery from each test throughout the detraining period.

714. STILLMAN, Agnes. Senda Berenson Abbott: Her life and contributions to Smith College and to the physical education profession. M.S. in Physical Education, 1971. 7[illegible] p. (E. E. Way)

A historical account of the contribution of an early pioneer in PE for women, this study presents the professional philosophy, activities, and achievements of Senda Berenson Abbott. The discussion includes a record of her early family life, professional career (with particular emphasis on her contributions to Smith College, 1892-1911), community involvement, and personal experiences.

715. THOMPSON, Sarah A. An analysis of the personality profiles of females selecting fear-producing sports. M. S. in Physical Education, 1971. 66 p. (E. E. Way)

The Edwards Personal Preference Schedule was administered to 152 undergraduate college women. Ss of intermediate skill ability who had participated in 1 or more instructional activities which had been rated during a preliminary survey as fear producing comprised the exp. group. Ss with no history of participation in the sports of swimming, diving, gymnastics, riding, or skiing served as the control. The sample in the present study differed significantly from Edwards' normative group in the traits of achievement, deference, order, autonomy, succorance, dominance, nurturance, endurance, and heterosexuality. Multiple discriminant analysis revealed that the control group differed significantly ($p<.05$) from the exp. group in the traits of aggression, nurturance, order, achievement, and heterosexuality. Within the exp. group no significant differences were found between any of the sports subgroups.

South Dakota State University, Brookings, S. D. (P. H. Brynteson)

716. BALL, Tom. Changes in the physical condition of college football players throughout a competitive season. M. S. in HPER, 1971. 59 p. (P. H. Brynteson)

Varsity football players (N=22) were tested on 5 occasions from before the season to 3 wks. after the season on 12-min. run, agility, leg strength, upper arm strength, wt., and % body fat. Both ANOVA and polynomial regression statistics were applied to the data. Results revealed 2 significant trends, a positive linear trend in upper arm strength, and agility.

717. BOVEE, Barbara. Effects of social dance upon selected physical responses. M. S. in HPER, 1971. 63 p. (G. E. Robinson)

Freshmen college students (N=76) served as Ss. The social dance group consisted of 19 male and 31 female Ss and a control group consisted of 14 male and 12 female Ss. The social dance class met twice/wk for 8 wks. and the control group was in an archery class for the same period of time. Results revealed social dance does make significantly greater contributions to balance, leg power, and leg strength than archery.

718. BOZIED, Robert. A history of intercollegiate baseball at South Dakota State University. M. S. in HPER, 1971. 119 p. (E. Huether)

The history of baseball from 1885 to 1970 was traced. The history was broken down into 5 eras with each era as a chapter. During this period many conference championships were won and several players received all-American honors.

719. COOK, William. The physiological effects of a season of varsity swimming competition and training on selected bodily responses. M. S. in HPER, 1971. 83 p. (P. H. Brynteson)

Eight Ss from the SDSU swimming team were tested on 6 occasions at about 3-wk. intervals throughout the swimming season. Tests administered were % body fat, $FEV_{1.0}$, FVC, endurance dips, vertical jump, max. $\dot{V}O_2$, max. $\dot{V}_E$, and $\dot{V}EO_2$. Only endurance dips revealed a significant linear trend throughout the season.

720. EIDSNESS, John. The effects of a collegiate basketball season on selected fitness measurements. M. S. in HPER, 1971. 46 p. (P. H. Brynteson)

Nine varsity basketball players were tested on 5 occasions from before the season began to 4 wks. after the season ended. Tests administered were max. $\dot{V}O_2$, leg power and strength, % body fat, and wt. Both ANOVA and polynomial regression statistics were applied to the data. Results indicated a significant quadratic trend in max. $\dot{V}O_2$. None of the other variables followed any significant trend.

721. FARRELL, Thomas. The present status of intramural sports programs for boys in South Dakota high schools. M.S. in HPER, 1971. 109 p. (W. E. Williamson)

SHSs (N=214) were surveyed by questionnaire or interview and 213 replied. Overall, 60% of the schools had no intramural program. In general, the larger the school, the better the program. There is a definite need for increased intramural programs in the state.

722. HELLERICH, Conrad. The development of a training film and manual on the 5-2 defense. M.S. in HPER, 1971. 64 p. (P. H. Brynteson)

A manual and training film explaining the 5-2 defense as used at South Dakota State University was developed. Game film examples of techniques were used as well as assimilated examples of the techniques by defensive linemen and linebackers.

723. HUNTER, Dwight. The status of aquatics programs in selected colleges and the development of an aquatics handbook. M.S. in HPER, 1971. 135 p. (G. E. Robinson)

Questions were sent to 193 aquatics directors and swimming coaches of colleges and universities about the same size of SDSU. On the basis of the results from 82% returns, an aquatics handbook was developed covering such topics as: administration, organization, pool construction, pool maintenance, curriculum, personnel, and several other topics.

724. JEPPSON, Neal. Status, past and present, of male physical education graduates of Concordia College, 1954-1970. M.S. in HPER, 1971. 86 p. (G. E. Robinson)

Questionnaires were sent out to 216 male PE majors with 162 (75%) returned. The broad survey technique was followed and questions relating to the status of the PE majors were asked, as well as their evaluation of Concordia's professional preparation program. In general, majors felt well prepared.

725. KRAUSE, JoAnn. Effects of exercise and an appetite suppressant on overweight college women. M.S. in HPER, 1971. 65 p. (G. E. Robinson)

Overweight college women (N=44) were randomly placed into 1 of 4 groups. A 2x2 factorial design was followed with the 2 variables being jogging and an appetite suppressant. Ss were tested initially, and after 3 wks. and 8 wks. of treatment on wt., % body fat, 4 girth measurements and cardiovascular efficiency. Results indicated the suppressant was significantly better than the placebo in several variables. Jogging was better than no jogging in only cardiovascular efficiency.

726. LENGKEEK, Betty. Selected responses of college women to a rope-skipping and cycling program. M.S. in HPER, 1971. 59 p. (G. E. Robinson)

Thirty-one female Ss were randomly divided into a cycling group, a rope-skipping group, and a control group. Ss conditioned 4 days per wk. for 5 wks. Ss were tested before and after the 5 wks. on % body fat, wt., Roger's S1, and predicted max $\dot{V}O_2$. Results revealed that the cycling group made the greatest improvements.

727. McCORMICK, Carol. Effects of selected music environments on performance of an endurance event. M.S. in HPER, 1971. 44 p. (P. H. Brynteson)
Twenty-six college women followed a treatment x Ss' design where they each rode a stationary bicycle ergometer at a resistance of 1.5 kgms under 5 different musical environments. They were told to pedal as fast as they could for 10 min. There was no significant difference among the groups in distance traveled. Differences were noted, however, in HR.

728. SCHAUER, Julie. A survey of the professional preparation of women for coaching intercollegiate athletics for girls in North Dakota. M.S. in HPER, 1971. 70 p. (G. E. Robinson)
All women coaches in North Dakota (178) were sent questionnaires and 158 responded. The majority indicated poor professional preparation, lack of practical experience, and a desire for increased competition for women.

729. SCHMEICHEL, Russel. The historical development of track and field athletics at South Dakota State University. M.S. in HPER, 1971. 212 p. (S. J. Marshall)
The history of track and field was traced from 1889 to 1970. The performances have gradually been improving as shown by school records. Seventeen different men have been the head coach during this period.

730. SQUIBB, Dennis. Evaluation of basketball player combination by use of the offensive and defensive efficiency rating system. M.S. in HPER, 1971. 48 p. (H. L. Forsyth)
An evaluation of the most efficient and effective performance by any 5-man combination of BB players was sought through use of Keller's Offensive Efficiency Rating and Defensive Efficiency Rating System. Eight members of interest to the head BB coach from the 1970-1971 South Dakota State University varsity BB team were studied. Nine of the 40 possible combinations were statistically analyzed.

731. VANDER BERG, Richard. History of intercollegiate athletics at Northwestern College. M.S. in HPER. 163 p. (S. J. Marshall)
The study portrayed the growth, development, and changes in intercollegiate athletics at Northwestern College, Orange City, Iowa, from 1928 through 1970. The school began as a junior college and became a 4-yr. liberal arts college in 1962. Much progress has been made since 1962.

732. VIS, Marlin. The relationship of forward pass catching ability in football and selected anatomical measurements and motor responses. M.S. in HPER, 1971. 70 p. (P. H. Brynteson)
Twenty-three Ss were tested on 11 independent variables which were thought to be related to pass catching ability. The criterion was measured as the number of receptions out of 120 passes on 8 different patterns. A multiple correlation and regression statistical procedure was employed to analyze the data. Several independent variables were significantly related to the criterion and significant regression equations were developed to predict the criterion.

University of Southern California, Los Angeles, California (H. Slusher)

733. HARPER, William Arthur. Human revolt: A phenomenological description. Ph. D. in Physical Education, 1970. (H. Slusher)

734. DRETCHMAR, Robert Scott. A phenomenological analysis of the other in sport. Ph. D. in Physical Education, 1970. (H. Slusher)

735. SUNDLY, Jerry Arthur. The desire to win: A phenomenological description. Ph. D. in Physical Education, 1971. (H. Slusher)

Southern Illinois University, Carbondale, Illinois (R. G. Knowlton)

736. BISHOP, Daniel D. Reliability estimation for the shuttle run test in the American Association for Health, Physical Education and Recreation youth fitness battery. M. S. in Physical Education, 1971. 63 p. (C. West)

Two scorers recorded times for 2 trials of the shuttle run test on each of 2 days for 241 ele. Ss. ANOVA indicated that male performance is superior to female performance; 6th grade Ss perform in a manner superior to 5th grade Ss, and 5th grade Ss perform in a manner superior to 4th grade Ss; male superiority is not dependent upon grade classification; the shuttle run is a highly reliable test; individual performance differs among Ss; group performance varies between days; group performance remains unchanged between trials; relative performance does not differ between trials; relative performance varies between days; the sequence of fast and slow trials are not reordered from day to day. The findings obtained by r analysis indicated that interjudge reliability is high for the shuttle run.

737. CARR, Gary L. The effects of slow stretch and proprioceptive neuromuscular facilitation-reversal of antagonist exercises on sprinting velocity. M. S. in Physical Education, 1971. 146 p. (L. A. Good)

The Ss (N=26) were measured for flexibility of the hip joint and filmed to measure selected aspects of running prior to and after receiving treatment. Each S was placed in 1 of 3 groups (control, slow stretch, and PNF) according to sprinting velocity, so that each group's M was approximately equal. The 2 treatment groups received specialized training for 7 wks. One-way ANOVA and the multiple comparison technique showed the 2 training techniques used in this study caused horizontal linear velocity of sprinting and flexibility of the hip joint to increase ($p<.05$). However, neither treatment group was significantly superior to the other. Furthermore, the treatment groups did not cause a significant change ($p>.05$) in stride cycle length or angular velocity of the lower limb segments.

738. DAMERON, Mary Jane. Augmented knowledge of results as an aid to the development of velocity in the overhand softball throw. M. S. in Physical Education, 1971. 86 p. (J. A. Thorpe)

Subjects were 109 fresh. and soph. SHS girls in 4 regular PE classes. Two classes were taught to throw by traditional methods, and 2 classes were taught using a procedure in which Ss were told the specific velocity of each throw immediately after each throw. Two teachers were used and the 4 classes were initially equal in regard to velocity scores. After 5 practice sessions classes were given a posttest administered on a test-

retest basis. Results indicated that the timing was objective and the Ss' performances on the posttest were reliable. Ss who received augmented KR performed significantly better than did those who did not, and groups assigned to 1 teacher performed better than groups assigned to the other teacher.

739. EOFF, Karen S. The effects of a six-week training program on the serum cholesterol levels of college age women. M. S. in Physical Education, 1971. 95 p. (R. G. Knowlton)

Five exp. Ss participated in a 6-wk. training program of treadmill walking. Each session (3-5 per week) was designed to elicit an O_2 consumption equivalent to a percentage of the S's $\dot{V}O_{2max}$. Serum cholesterol was determined by a direct, micro-technique using premeasured reagents (Dow Chemical). Daily caloric intake, dietary composition, and % body fat were determined for each S. The M $\dot{V}O_{2max}$ of the exp. group was increased at the end of the training period, while the sendentary control group showed no notable change. However, the results of the study were opposite to that hypothesized; the control group of 3 Ss showed greater M reductions in serum cholesterol than did the exp. group. Analysis by multiple regression showed that knowledge of initial cholesterol levels was of greatest predictive ability of the change in cholesterol from the pretraining to posttraining period, resulting in an R^2 value of .41. It appeared that some factor(s) other than changes in diet, body composition, and exercise operated to effect the changes in cholesterol observed in this study, as these 3 predictors resulted in a low R^2 value of .07.

740. LEGG, Edwin L. A comparative study of the whole and part instructional techniques for teaching beginning swimmers the crawl stroke. M. S. in Physical Education, 1971. 68 p. (P. Carroll)

Two equated groups of college male beginning swimmers were given 4 wks. of continuous crawl stroke instruction. One group received instruction by the whole method and the other group received instruction by the part method. Three timed 50-yd. swim tests, 3 distance endurance swim tests, and 2 timed 25-yd. swim tests were administered to both groups. There was no significant difference ($p>.05$) between groups for the 3 timed 50-yd. swims, the 3 distance endurance swims, and test 1 of the timed 25-yd. swims. Test 2 of the timed 25-yd. swims indicated that the whole method was superior to the part method ($p<.05$).

741. RINGENBERG, Joe A. Psychological factors resulting from rapid weight reduction in selected high school wrestlers. M. S. in Physical Education, 1971. 38 p. (J. J. Wilkinson)

Subjects (N=24) from 3 SHS in the Southern Illinois area were administered 2 semantic differential tests before and after rapid wt. reduction. A total decrease in mean differences, and an overall r of .88 was reported (ANOVA, $p>.05$). It was concluded that no significant attitude change resulted from a rapid weight reduction of 3% or more of body wt.

742. STIFF, Delores, M. Relationship between type of delivery and spare success in bowling. M. S. in Physical Education, 1971. 74 p. (C. West)

Two raters recorded 3 items of information for each of 1,282 observations. The observations were made with respect to the no. of pins left standing after the first ball was delivered, the number of pins knocked down after the second ball was delivered, and the type of delivery (hook, straight, curve, or backup) utilized on the second ball. Analyses of data indicated that type of delivery was not a determinant of success when spares were attempted.

743. TANNER, Kevin J. A comparison of two methods of training of the lower extremities on vertical jump ability. M. S. in Physical Education, 1971. 69 p. (L. Good)

Twenty-seven students, 12 volunteers and 15 basketball players, completed a pre- and post-test for vertical jumping ability. They were separated into 3 groups: a control group, an isotonic progressive resistance exercise group; and an isokinetic exercise group. The 3 groups were also subdivided into basketball and nonbasketball players. ANOVA and multiple comparison technique showed an increase in vertical jumping ability ($p<.05$) but no difference between treatments. However, isokinetic exercise was determined to be more feasible.

744. WARREN, Beverly J. The relationship between self-concept and performance on tests of skill in basketball. M. S. in Physical Education, 1971. 94 p. (J. A. Thorpe)

College women PE majors (N=56) were administered the following tests: a general self-concept test, 6 basketball skill tests, and a questionnaire assessing previous experience in basketball. Data were analyzed by means of correlation coefficients, the computation of standard scores, and multiple linear regression analyses. Results of the study indicated that the general self-concept score, as measured by the Q-sort technique, was not related to any of the skill tests; the self-concept score was not related to the composite skill test score; the relationship between experience in basketball and the composite skill test score was slightly higher than the relationship between self-concept and composite skill or self-concept and experience; and neither the experience score nor the composite skill test score was an adequate predictor of the self-concept.

Springfield College, Springfield, Massachusetts (W. J. Sullivan)

745. ACEVEDO, Orlando. Administration and organization of sports in Colombian universities. M. S. in Physical Education, 1971. 72 p. (W. Doss)

Data were collected from a questionnaire administered to 26 sports directors at Colombian universities. Analysis of the responses showed a general lack of any established system of administrative procedure in conducting the sports program in the Colombian universities. The relationship of the sports program to other programs differs among the universities. There is no common table of organization of the sports program and the director may be responsible to different persons. Scheduling practices differ greatly among the universities. Most universities received funds for the intercollegiate sports program from the administration.

746. AMPOLO, Louis. A survey for formulating a course of study in dance appreciation through lecture and correlated films. M. S. in Physical Education, 1971. 97 p. (J. Genasci)

A series of personal interviews was held with a panel of dance experts and the obtained information was used to construct a questionnaire sent to 75 college and university dance department chairmen. Sixty-three completed questionnaires were returned. Dance films, recommended as a corollary to the lectures, were selected after careful review. Data obtained from the questionnaires were treated by % analysis. It was concluded that some colleges and universities offered a course in dance appreciation which employed the lecture and correlated films. There are no existing textbooks suitable for a course of study in dance appreciation correlating the film and the lecture. In presenting the course content, the lecture-film-lecture procedure should be used. A course in dance appreciation should include ethnic, folk and social, ballet, and modern dance.

747. BARGER, Marsha. The effects of balance activities on dynabalometer performance of preschool children. M. S. in Physical Education, 1971. 72 p. (B. Jensen)
Subjects (N=16) were 4- and 5-yr. -old children, and were pre- and posttested on a dynabalometer. An exp. group participated in a 4-wk. program of balance activities while a control group was given seat work activities. The computed t, using gains scores, indicated no significant difference between groups ($p>.05$). The t's computed between pretest and posttest for both groups also yielded nonsignificant values ($p>.05$).

748. BONNEAU, Jean. The effect of filmstrips versus flash cards upon the training of the corner linebacker in Canadian high school football. M. S. in Physical Education, 1971. 78 p. (E. Seymour)
The Ss (N=46) were members of a Canadian SHS football team and were randomly assigned to 2 groups. One group was taught the correct play of a corner linebacker through the use of filmstrips, while the other group was taught by using flashcards. There were 8 training sessions, each lasting for 10 min. Ss were pre- and post-tested for their responses to various play situations. The responses consisted of accuracy and RT. ANCOVA showed that the group taught with filmstrips showed significantly faster ($p<.01$) RT than the flashcard group. There was a nonsignificant difference ($p>.05$) between the 2 groups relative to the accuracy of response.

749. BORDAS, Elizabeth. The effects of two methods of teaching developmental movement on balance of third and fourth grade children. M. S. in Physical Education, 1971. 90 p. (M. Thorsen)
The Ss (N=48) were 3rd and 4th graders. An exp. group was given a program that stressed the development of balance through developmental movements taught by the problem-solving method. The control group received the same unit on the development of balance but the class was conducted strictly by verbal instruction and class drill. Each group met for 30 mins., 3 times a wk. for 5 wks. All Ss were pre- and post-tested for balance ability on the stabilometer. ANCOVA found the 2 groups did not differ in balance ability ($p>.05$) as measured by the stabilometer. However, both groups made significant gains in balance ($p<.05$).

750. BRESETT, Stephen M. A comparative study of the athletic capabilities of deaf and nondeaf students. D. P. E., 1971. 109 p. (J. Genasci)
The Ss (N=100) were males and females ranging in age from 12 to 14 yrs. Fifty Ss were deaf and 50 had normal hearing. Each of the 2 groups was comprised of 25 boys and 25 girls. All Ss were tested for MBC, agility, second volume breathing capacity, arm strength, speed run, leg strength, eye-hand RT, and eye-hand coordination. The t showed the hearing Ss had superior capability ($p<.05$) in MBC, agility, second volume capacity, and eye-hand RT. A significant difference ($p<.05$) was found in favor of the hearing girls only in leg strength. No significant differences ($p>.05$) were found for boys and girls in eye-hand coordination, arm strength, and running speed, and for boys in leg strength.

751. BROUILLARD, Barbara. A study of girls' point systems in selected public secondary school physical education programs of New York state. M. S. in Physical Education, 1971. 180 p. (J. Parks)
A questionnaire was administered to 326 physical educators in public secondary schools in New York State (excluding New York City). Using percentage analysis it was found that the no. of schools utilizing a point system was directly proportional to the size of school enrollment.

Leadership and service were more important than winning. Enlarging the after-school program influenced the revision of point systems. Differences existed in the value placed upon competition in intramural, extramural, and/or interscholastic activities.

752. CALIENDO, Nat S., Jr. A study to determine if the velocity of swinging a bat in baseball is affected by holding the bat in the palms or in the fingers of the hands. M.S. in Physical Education, 1971. 48 p. (W. Doss)

College varsity, fresh., and jr. varsity baseball players (N=30) were tested for bat swing velocity using the 2 grips. Measurements were in mph utilizing the Marathon velocity bat. The computed t was found to be nonsignificant ($p>.05$), indicating that neither grip was superior to the other as far as bat swing velocity was concerned.

753. CHARNEY, Jack. A study of methods used in positioning players in selected college freshman football programs. M.S. in Physical Education, 1971. 69 p. (E. Dunn)

Data for this study were collected through the use of a questionnaire administered to 16 New England college fresh. football coaches. It was found that 1-on-1 and 2-on-2 drills were used most often in the selection of offensive and defensive linemen. Tackling drills were used most often in the selection of linebackers. Ball handling drills and running ability were used most in the selection of offensive backfield personnel. The most efficient method of positioning college fresh. football players is based on the specific skills possessed by a player.

754. DAMERON, Clifford H. A survey of wrestling maneuvers. M.S. in Physical Education, 1971. 139 p. (E. Seymour)

Sixteen dual meets and 1 quadrangular meet in which the Springfield College varsity wrestling team was involved were observed by the investigator. Information was collected relating to takedowns, escapes, and reversals. It was found that the single leg tackle was the most frequently attempted takedown maneuver. This maneuver was the most successful against Springfield College, while the duck-under was the most successful for Springfield College. The switch was the most successful reversal for and against Springfield College. The stand-up was the most successful escape for Springfield College, while the sit-through-turn-in was the most successful escape against Springfield College.

755. DHAMI, Jaspal S. Health needs and interests of higher secondary school students of New Delhi, India. M.S. in Physical Education, 1971. 217 p. (H. Childs)

A questionnaire divided into 12 major health areas containing 88 health topics was administered to 499 students, 31 professional people, and 97 teachers. Data were analyzed to determine rank order and % of emphasis of health needs and interests of students. Rho coefficients were computed between various groups. Students, professional people, and teachers agreed that the most needed health area was "personal health," although they disagreed on the least needed health area. There was a high relationship between boys and girls in their expressed interests. There was a high relationship between professional people and teachers in their expressed student health needs. There was a low relationship between students and both professional people and teachers relative to student health needs.

756. DROUIN, Denis. A study of the physical education programs in newly established colleges in the Province of Quebec. M.S. in Physical Education, 1971. 127 p. (W. Doss)

The purpose of the study was to compare the existing programs for men and women in 23 public colleges in Quebec with the guidelines recommended by the Ministry of Education. Data were collected through the use of a questionnaire and treated by % analysis. It was found that colleges in their second yr. were more in agreement with the guidelines than colleges in their first year. In colleges where there was a special division of PE, a close relationship existed between the instructional, intramural, and intercollegiate phases of the program.

757. EDWARDS, Lenwood E. The relationship of the employer's first-year evaluations to selected indices of physical education majors at Springfield College. M. S. in Physical Education, 1971. 34 p. (J. Neumann)

Data for this study were taken from the records of 50 PE majors (class of 1969) at Springfield College. Information obtained included the cumulative index, professional index, and responses to each of 10 questions on the employer's first year evaluation form. Triserial correlations were computed to determine the relationship between employer's evaluation and professional index and between employer's evaluation and cumulative index. Of the coefficients computed between employer's evaluation and professional index, 4 were significant ($p<.05$). Of the coefficients computed between employer's evaluation and cumulative index, 6 were significant ($p<.05$). It was concluded that the cumulative index is a more adequate measure of teaching success than is the professional index.

758. FITZGIBBONS, Thomas M. The effect of selected training programs on throwing a football for distance. M. S. in Physical Education, 1971. 31 p. (W. Sinning)

The Ss for this study were members of a SHS football team who were randomly assigned to 1 of 3 groups. One group trained by using the Exer-Genie, another by lifting weights, and a third group trained by throwing a regulation football. The training program lasted 6 wks. and Ss were given a pre- and a post-test which consisted of throwing a football for distance. ANCOVA showed no significant differences ($p>.05$) among the 3 groups.

759. FOSTER, Graham W. The relationship between agility and reported self-concept in sixth grade boys. M. S. in Physical Education, 1971. 89 p. (E. Bilik)

All Ss (N=60 6th grade boys) were administered the McCauliff Agility Components Test and the Sears Self-Concept Inventory. Rho was used to determine the relationship between agility and overall self-concept and between agility and 11 specific facets of self-concept. Correlations between agility and overall self-concept (.350) and between agility and the specific self-concept measures of physical ability (.582), mental ability (.351), social relations - same sex (.496), social relations - opposite sex (.396), physical appearance (.349), and happy qualities (.337) were all significant ($p<.01$). Correlation between agility and work habits (.267) was significant ($p<.05$). Correlations between agility and social relations-teacher (.142), social virtues (.150), school subjects (.033), and academic self-concept (.117) were nonsignificant ($p>.05$).

760. HAYES, Donald. The nature, incidence, location and causes of injury in intercollegiate ice hockey. D. P. E., 1971. 161 p. (W. Sullivan)

Data for this study were collected from institutions conducting intercollegiate hockey programs in Canada and the U. S. A. Intercollegiate hockey games (N=280), 212 Canadian and 68 American, were reported. Data were treated by X^2. It was found that accidental injuries are far more prevalent than penal injuries. Fewer injuries occur in the 1st period

than in the 2nd and 3rd periods. A greater number of players were injured while in contention for the puck than when away from the puck. Most injuries occurred in the areas bounded by the goal lines and blue lines and were of a minor nature. The head and face are far more vulnerable to injury than other parts of the body. Very few differences relative to injuries exist between the Canadian and American games. However, Canadian teams experience a higher incidence of penal injuries, while American teams appear to have a higher incidence of accidental injuries.

761. HESCHELES, Andrew Henry. Bilateral transfer in the learning of physical skills. M. S. in Physical Education, 1971. 38 p. (R. Frost)

The purpose of the study was to determine if a skill learned with the right hand would transfer to the left hand. Ss (N=68) were 8th grade boys randomly assigned to an exp. or control group. The criterion skills were the under-basket basketball shot and the underhand softball throw for accuracy using each hand. The exp. group practiced the skills for 6 wks. while the control group was taught gymnastics. The exp. period consisted of 15 teaching sessions. ANCOVA and t found nonsignificant differences between groups ($p>.05$). Therefore, it was concluded that bilateral transfer did not occur.

762. HIRSTEL, Coco J. The effects of colored equipment on the attitude of elementary school children towards physical education. M. S. in Physical Education, 1971. 58 p. (M. Thorsen)

Fourth and 5th grade students (N=49) were randomly assigned to an exp. or control group. The Kneer adaptation of the Wear PE Attitude Inventory was administered to Ss at the beginning and end of the exp. period. Both groups were presented the same unit of activities; however, the exp. group used brightly colored equipment while the control group used regulation colored equipment. The Mann-Whitney U Test and the Wilcoxen Matched Pairs test indicated the use of brightly colored equipment does not affect the students' attitudes toward PE.

763. HOFFMAN, Edwin S. A study of the status of weight training in selected secondary schools. M. S. in Physical Education, 1971. 79 p. (J. Neumann)

A questionnaire was administered to 117 male Springfield College graduates from the graduating classes of the yrs. 1963-1966 who were presently instructors of boys' PE in public secondary schools in the U. S. Through % analysis it was found that the greatest use of wt. training was in the instructional program, although many used wt. training during the off-season as a conditioner for interscholastic sports. Wt. training received greatest concentration in the 10th and 11th grades. The method of wt. training that received the greatest emphasis in the after-school club program was that of high wt., low repetition. A majority of respondents indicated a lack of adequate facilities for wt. training.

764. HOUZER, Shirley Palmer. The importance of selected physical activities to women students in predominantly black South Carolina colleges. M. S. in Physical Education, 1971. 97 p. (J. Parks)

An Interest/Participation Inventory, designed by the investigator, was administered to 265 women students at 5 of the 6 colleges in South Carolina with predominantly black enrollments. Form B of the Wear Attitude Inventory was also administered. X^2 was used to test for significance of M score divergence from the neutral score of 3. Quintiserial and contingency correlation techniques were also used. It was found that Ss were more involved in team sports than in dual and individual sports. Ss did not have sufficient interest and skills in carry-over activities; their

interest in specific activities was related to experience in the activity and to their attitude toward specific activities.

765. HUNTER, Charles L. The sequence of hip and selected upper-extremity joint movements during the golf drive. D. P. E., 1971. 136 p. (W. Sinning)

Using electrogoniometry and cinematography, the wrist, forearm, elbow, and hip actions of 10 low-handicap golfers were analyzed while they attempted to accurately hit a drive for maximum distance. It was found that general patterns of movement thoughout the golf swing varied among Ss; however, the variability of the movements of each S on repeated trials was small. All Ss demonstrated extensive adduction of both wrists and flexion of the right wrist just before ball contact. Combined hip movements performed at a constant rate throughout the swing were characteristic of all Ss, although the timing of hip movement was individualistic. There was considerable variability among the Ss in the amount they circumducted their left arm in a clockwise fashion. Other findings were given relating to specific body actions during the downswing.

766. KOBER, William M. The effect of training with ankle weights on ice skating speed and endurance. M. S. in Physical Education, 1971. 46 p. (R. Frost)

Sixteen SHS varsity hockey players were matched on the basis of ice skating speed and randomly assigned to an exp. or control group. The exp. group practiced with 2-lb. wts. attached to their ankles; the control group practiced without the ankle wts. Ss practiced twice a wk. for 9 wks., each practice session lasting 50 min. All Ss were pre- and post-tested for forward skating speed and forward skating endurance. The t for correlated groups was used to test for differences between groups on skating speed and ANCOVA to test for differences in skating endurance. Both tests yielded nonsignificant ($p>.05$) values.

767. LILLY, Raymond G. The effect of different distances from starter to competitors on starting times in staggered start races. M. S. in Physical Education, 1971. 51 p. (W. Sinning)

Male volunteer track athletes (N=8) ranging in age from 15 to 26 yrs. were tested at each of 8 selected starter-to-runner distances. The criterion score was the period of time between the firing of a .22 caliber blank to the raising of the S's right hand during the sprint start. A treatments-by-Ss ANOVA was significant ($p<.001$). Individual comparisons showed that when the distance between lanes was greater than 48 ft., the difference in times was statistically significant. It was concluded that the differences in starting times were due to differences in starter-to-runner distances and not to physiological or other factors.

768. LINDBERG, Gary D. The validation of selected techniques for the estimation of body composition in male athletes. M. S. in Physical Education, 1971. 56 p. (W. Sinning)

Skinfold and skeletal diameters were measured for 29 male Ss and body density and lean body wt. were determined from underwater densitometry. It was concluded that regression equations based upon anthropometric measurements, such as skinfolds and skeletal diameters, will predict selected components of body composition, specifically fat and fat free tissue when applied to a population which is similar to the population for which the regression equations were derived. Also, the Behnke equation for the prediction of lean body wt. from 12 diameters can be applied to a population other than that from which it was derived.

769. McCRAY, Mary E. A documented analysis of rule changes in women's basketball from 1935 to 1970. M. S. in Physical Education, 1971. 81 p. (J. Bush)

The hypothesis tested in this study was that the trend in rule changes from 1935 through 1970 created a faster game of basketball for women. It was concluded that the primary reason for rule changes involved consideration for the health and safety of the players. In addition, many of the rule changes resulted in speeding up and creating a much faster game for girls and women.

770. METRELIS, Dora M. Proficiency in the performance of selected physical education skills and success in teaching those skills. D. P. E., 1971. 141 p. (R. Frost)

Female SHS PE teachers (N=20) and 956 of their students were given a battery of tests in basketball, gymnastics, and softball. Teachers were rated on their performance in these activities and assigned to a proficiency category. They taught and tested their students in the activities assigned to them for a 16-lesson unit. In basketball and softball the Ss were tested by using the AAHPER skills tests for girls. In gymnastics they were rated on the basis of 4 basic skills. Data were converted to standard scores (T) and evaluated by ANCOVA. It was found that all students increased in ability, although the students of the highly skilled teachers increased significantly more ($p<.05$) in all activities than did the students of the less skilled teachers.

771. MILLER, Charles R. The effect of the size of ball and height of the basket on the learning of selected basketball skills by fifth grade boys. D. P. E., 1971. 102 p. (E. Steitz)

The Ss were 88 5th grade boys randomly assigned to 1 of 4 treatment conditions resulting from the factorial arrangement of the 2 exp. variables. The exp. variables were size of ball (regulation and junior size) and ht. of basket (10 ft. and $8\frac{1}{2}$ ft.). All Ss were pre- and post-tested on speed pass, dribble, under-the-basket-shot, and foul shot under the regulation condition and the exp. condition to which they were assigned. They practiced the skills under their exp. condition for 4 wks., 3 times a wk. ANCOVA showed that the size of the ball used for practice had no effect on ball handling skills. However, the use of the smaller ball for practice resulted in greater shooting accuracy. The ht. of the basket did not affect shooting performance.

772. MOULD, Michael W. A history of the National Junior College Athletic Association. D. P. E., 1971. 326 p. (J. Parks)

Data for this study were obtained from financial statements, constitutions, correspondence, publications, reports, and minutes of NJCAA meetings. In addition, personal interviews and correspondence were used. The study detailed the organization and activities of the NJCAA from its inception in 1937 to 1969. It was concluded that the NJCAA has provided leadership, direction, and unity in developing a national, multifeatured program of junior college intercollegiate athletics. The NJCAA has served to promote a national program of junior college intercollegiate athletics which is consistent with the educational process of American 2-year colleges.

773. MYERS, James Michael. A comparison of three methods of moving to second base and first base from a stationary lead position. M. S. in Physical Education, 1971. 34 p. (W. Sullivan)

Freshman baseball players (N=13) were tested for MT toward first base and toward second base under 3 exp. conditions. One condition involved a lean toward first base, a second condition involved a lean toward second base, and the third involved the 2-way lead in which the body did not lean toward either base. ANOVA showed no significant differences ($p>.05$). It was concluded that no 1 of the 3 methods of leading off first base was faster than the other 2 in moving toward second base or back to first base.

774. PEAKE, Leslie H. Perceptual motor readiness. M.S. in Physical Education, 1971. 78 p. (J. Parks)
Kindergarten pupils (N=190) were administered a perceptual motor readiness rating scale and the Metropolitan Readiness Test. In addition, teacher evaluations of the pupils' readiness for grade 1 work were obtained. The r between perceptual motor readiness and teacher ratings was .56; between perceptual motor readiness and the Metropolitan Readiness Test, .38; and between Metropolitan Readiness Test and teacher ratings, .55. All r's were significant ($p<.01$).

775. RAYMOND, Barbara L. The effect of two sizes of rackets on performance of the forehand and backhand tennis strokes. M.S. in Physical Education, 1971. 50 p. (B. Jensen)
The Ss for this study were 26 female JHS beginning tennis players. An exp. group was taught while using a small racket; the control group used a regulation size racket. Both groups met for 8 lessons during which the forehand and backhand strokes were taught and practiced. After 5 lessons Ss were given the Broer-Miller Forehand-Backhand Test while using the rackets they had used during practice. For the last 3 wks., and the final test, all Ss used the regulation racket. The t found nonsignificant differences ($p>.05$).

776. REDDEN, William L. An evaluation of a training manual for members of a senior high school physical education student leaders' corps. M.S. in Physical Education, 1971. 103 p. (J. Neumann)
Members (N=47) of a SHS PE student leaders' corp evaluated a training manual according to concept, form, and helpfulness. Percentage analysis showed the manual to be favorably received by the student leaders. However, they did not feel that leadership skills could be taught by means of the manual. They also felt the manual was helpful to them in the performance of their duties.

777. STAPLES, Lionel. A comparison of the effects of binocular vision and monocular vision on accuracy in basketball shooting. M.S. in Physical Education, 1971. 41 p. (B. Jensen)
Members of a varsity and freshman basketball team (N=10) with dominant handedness and eyedness on the same side were tested under 3 visual conditions: binocular, dominant monocular, and nondominant monocular, each in combination with 4 shooting stations. Each S completed all 12 treatment combinations. ANOVA showed significance for both visual and shooting position variables ($p<.01$). The Duncan Multiple Range Test showed that all visual conditions were significantly different from one another and all but one comparison of the shooting position variable were significantly different. It was concluded that shooting accuracy is greatest under the condition of binocular vision and better under monocular vision with the dominant eye than with the nondominant eye. Shooting accuracy decreased as the distance from the basket increased and was superior from in front of the basket than from equidistant positions at the side.

778. SZLOSEK, Joseph E. A comparative study of two instinctive aiming methods used in teaching beginning archery. M.S. in Physical Education, 1971. 106 p. (W. Sullivan)
Thirty male sophomore SHS students were randomly assigned to one of 2 groups in which one group practiced using a predraw gap method of shooting while the other used the 3-fingers-under method of shooting. Both groups practiced 3 times/wk for 3 wks., shooting 10 arrows each practice session. At the conclusion of the 3 wks. all Ss were tested for accuracy at 7, 17, and 27 yd. ANOVA was used to test the significance

of the differences at the 3 distances and for the combined scores. Non-significant differences ($p>.05$) were found between the 2 groups, except for the 17-yd. distance where the 3-fingers-under method was found to be significantly more accurate. It was explained that this difference may have been caused by the low reliability of the test ($R=.48$) at that distance. It was concluded that neither method was superior to the other as far as accuracy in archery was concerned.

779. VERNON, Charles D. A survey to determine the extent of the use of the curved hockey stick at the high school level. M.S. in Physical Education, 1971. 66 p. (J. Neumann)

A questionnaire administered to 164 varsity hockey coaches at SHSs in Massachusetts and Minnesota found that differences between the coaches in the 2 states were small. Most coaches (74%) allowed the use of the curved stick. These coaches were nearly unanimous in their belief that shooting was helped most by the curved stick; however, they were undecided as to which type of shot was best suited for the curved stick. Most coaches felt that the major disadvantage of the curved stick was in backhand passing and shooting.

780. VIERA, Barbara L. A study of nonprofessional duties performed by women physical education teachers in the public secondary schools of Connecticut. M.S. in Physical Education, 1971. 120 p. (A. Sherman)

A questionnaire was sent to 68 experts in the field of PE to determine duties which could be classified as nonprofessional. Results of this questionnaire were used to construct a second questionnaire sent to 279 women physical educators in the public secondary schools of Connecticut. It was conluded from the respondents that no more than 25% of their time is spent performing nonprofessional duties. They do not prefer to have nonprofessional help in performing certain tasks. Women in large schools have more nonprofessional personnel available to them than do women in medium and small schools.

781. WARDELL, Robert. A survey of the YMCA springboard diving program. M.S. in Physical Education, 1971. 65 p. (W. Doss)

A questionnaire was administered to aquatic directors ($N=145$) from YMCAs in cities with 200,000 or more population in the U.S. that had swimming facilities. It was concluded from % analysis that the YMCA Springboard Diving Program was being used in very few YMCAs. The program was believed to be impractical due to a lack of qualified instructors, lack of member interest, and a lack of springboard diving facilities.

782. WYNN, Mabel Hill. A descriptive chronology of contemporary dance works by three selected American Negro choreographers from 1947-1964. M.S. in Physical Education, 1971. 144 p. (J. Parks)

Sources and data were obtained from the Dance Collection of the Performing Arts Library and from dance books, periodicals, photographs, newspaper articles, and programs. Additional data were obtained from ciritical reviews by recognized dance critics. The 3 choreographers chosen for this study were Talley Beatty, Donald McKayle, and Alvin Ailey. Analysis of data revealed that the elements determining success or failure were choreographic structure, form and movement, and content, production, and projection. The majority of the unfavorable comments dealt with structure and form, while the element encompassing movement-content received the majority of favorable comments. Findings indicated that success cannot be gauged by the theme of the work. The knowledge and skills possessed by the choreographers are most important in determining success.

Stanford University, Stanford, California (J. E. Nixon)

783. JORDAN, Timothy C. Visual and proprioceptive feedback variables as factors in the learning and retention of a motor skill. Ph. D. in Education, 1971. 84 p. (J. E. Nixon)

Ss (36 naive fencers) received identical pretraining, then were randomly assigned to 1 of 3 groups (visual; visual and proprioceptive; and proprioceptive, i. e. blindfolded). The task was a fencing move, the disengage and lunge. All Ss received 3 different forces of the stimulus (blade deflection) in a random but balanced fashion. A special piece of equipment was constructed for this purpose. There were 10 test and 5 post-test sessions (15 trials in each) with a 2-wk. interval between. EMG was used to separate RT and MT. ANOVA on Test 10 indicated that the blindfolded group had significantly faster RTs and total response times (RT plus MT) than the other groups. MT alone was not significant, due to a high variance. Regression analysis indicated the blindfold treatment to be a significant training technique for reducing RT and MT. When visual and proprioceptive stimuli were presented together, the visual was dominant in its demand for attention. The proprioceptive response was faster than the visual response in the motor program. Little direct relationship was found between RT and MT. However, the stronger the force deflection administered, the faster was the RT. The opposite effect was observed for the corresponding MT.

784. LAUGHLIN, Neil T. Teacher effectiveness and authoritarianism in male physical education teachers. Ed. D. in Physical Education, 1972. (J. E. Nixon)

This study investigated the relationship between the number of liberal arts courses taken by male PE teachers (N=33) during their professional preparation, their GPA, their number of years teaching, and the interactions of these 3 variables and 2 dependent variables: student perceptions of their teaching effectiveness, and their degree of authoritarianism. Ss were separated into 2 treatment groups on each of the 3 independent variables and placed in 1 of 8 cells which represented each possible combination of variables. ANOVA was used to treat the data. Student perceptions of teacher effectiveness were measured by means of a 100-question inventory developed by William Beck. This inventory measures teacher merit in 5 dimensions: affective, cognitive, disciplinary, innovative, and motivational. The authoritarianism of the Ss was measured by means of the California-f scale developed by Christie et al. Ss with a greater number of liberal arts courses were perceived to have more cognitive teaching effectiveness ($p<.05$) and Ss with higher GPAs were perceived to be less authoritarian ($p<.05$). The interaction between GPA and teaching experience significantly influenced the affective, cognitive, innovative, and motivational effectiveness of the Ss and the sum of the dimensions of effectiveness.

Syracuse University, Syracuse, New York (J. H. Shaw)

785. MCCONNELL, Ann Marie. The effects of praise or blame on a motor learning task and on the attitude formed toward the task of introverts and extroverts. Ed. D. in Physical Education, 1971. 84 p. (J. H. Shaw)

Extroverts (434) and 337 introverts enrolled in the basic PE course at Syracuse University were divided with the use of the Maudsby Personality Inventory. Ss (N=36) were drawn from each group and tested in 2 sessions. They practiced 15 sec. and rested 20 sec. on a pursuit rotor with

KR given after each trial. Each S completed a rating scale to measure attitudes formed toward the task. Extroverts and introverts were compared by a t test which indicated no difference in either performance or attitude scores. Second test groups were randomly assigned to praise, blame, or control conditions resulting in 6 groups (3 extrovert and 3 introvert). Then 25 trials similar to the first session with praise or blame being administered 6 times to appropriate Ss were conducted. Results indicated that reinforcement did not affect performance or attitude. Post hoc analysis by reshuffling Ss yielded no evidence of an effect being masked by level of ability or anxiety. Practice effects were evident between session 1 and 2. There was a positive but low correlation between attitude and performance.

Temple University, Philadelphia, Pennsylvania (B. D. Franks)

786. AIERSTOCK, Barbara A. Effects of exercise upon selected physiological responses to a psychic stressor in college women. Ed. D. in Physical Education, 1972. 81 p. (B. D. Franks)

CCT, GSR, and blood pressure measures were taken on women (N=36) in response to 5 min. of exercising on a bicycle ergometer, reading, and reading with delayed auditory feedback and electric shock (DAF); the experimental conditions were used singularly and in combination. A 3x2x3 repeated measures ANOVA and Pearson product moment correlation coefficient were used for the statistical analysis (Alpha, .05). Exercise as a stressor was not additive when combined with the conditions of reading and/or DAF. Exercise, reading, and DAF caused physiological changes resulting in an imbalance of the homeostasis of the body. There was no evidence that the physiological responses to reading differed from the physiological responses to DAF. GSR and DBP were related to SBP in greater magnitude than the other autonomic responses when measured under resting conditions.

787. COVINGTON, Donald W. Comparison between gymnasts of different ability on selected motivational factors. Ed. M. in Physical Education, 1971. 38 p. (R. A. Berger)

788. CRANE, Susan Rothenberger. Effects of various types of warm-up on scoring success in archery. M. S. in Physical Education, 1971. 59 p. (T. W. Evaul)

Experienced archers (N=17) were tested after each of 4 warm-up treatments: no warm-up; regular warm-up (2 ends with regular bow); overload (2 ends with a bow 5 lbs. heavier than the regular bow); and combination warm-up (1 end with heavy bow, 1 end with regular bow). The test consisted of shooting 60 arrows at a 20-in. target from a distance of 20 yds. ANOVA was computed for the group as a whole, a high skill group (N=7), and a moderate skill group (N=7). Total score for 12 ends, the immediate scoring success (score on first 4 ends), and long range scoring success (score on the last 4 ends) were evaluated. There were no significant differences among the effects of the treatments on the total scores shot by the whole group, high skill group or moderate skill group. There were no significant differences among the effects of treatments on immediate and long range scoring success for either the whole group or the moderate skill group. The high skill group had significantly higher scores after the regular warm-up than after no warm-up and combination warm-up treatment. On the long-range scoring success the high skill group had significantly higher scores after the no warm-up. There were no significant differences between the immediate and long-range scoring success under any of the 4 treatments for either the whole group or the

moderate skill group. For the high skill group, the immediate scoring success was significantly higher than the long range success after the regular warm-up. The long range success was significantly higher than the immediate scoring success after the no warm-up treatment.

789. DE LIA, Rose. The nature of the sexual deviation in the professional training of prospective health teachers. Ed. M. in Health Education, 1971. 75 p. (W. H. Greene)

790. DIAMOND, Sharon. Visual perception and motor ability of educable mentally retarded and normal children. Ed. M. in Physical Education, 1971. 91 p. (D. R. Hilsendager)

791. FASSBENDER, William V. L. The sex knowledge of health and physical education as it relates to attitudes toward sex and sex education, patterns of professional preparation and practices, and selected personal factors. Ed. D. in Health Education, 1971. 133 p. (W. H. Greene)

792. KOWALSKI, Pearl. A comparative study of the caloric cost for women's five and six player basketball. Ed. D. in Physical Education, 1971. 114 p. (B. Burris)

793. MELOGRANO, Vincent J. Effects of teacher personality, teacher choice of educational objectives, and teacher behavior on student achievement. Ed. D. in Physical Education, 1971. 173 p. (T. W. Evaul)

794. O'DAY, Shirley A. The effect of two health education projects on health instruction practices and curricular changes in the public secondary schools in the Middle Atlantic States. Ed. D. in Health Education, 1971. 254 p. (H. K. Jack)

A survey of literature published from 1965-1970 which made reference to the SHES project and the HE Curriculum Commission project of the AAHPER revealed 32 articles in 8 educational periodicals. A questionnaire survey of the state departments of education in the Middle Atlantic States revealed an influence of the SHES project on HE practices, but little influence of either project on curriculum guidelines. A questionnaire survey received from 75.2% of 275 multistage randomly selected Middle Atlantic State public secondary schools disclosed there was not a significant proportion adhering to a majority of the selected health instruction practices except in the New York schools. The survey disclosed 43.3% of the respondents were acquainted with the SHES project and 30.9% with the AAHPER project. These proportions were not significant nor was the proportion of schools adhering to either project's recommendations for a conceptual approach to health curriculum. The survey revealed neither the school geographical location of rural, suburban and urban, nor the population size of small or large affected health instruction practices, or the adoption of the conceptual approach in health curriculum. It appeared the state department recommendations concerning HE had a greater influence on the public schools than did current HE literature or national HE projects.

795. ODELL, Sally L. The relationship of somatotype to selected areas of physical fitness for the tenth grade girl. Ed. M. in Physical Education, 1970. 81 p. (B. Burris)

796. SHIVE, Earl S. Student teacher success in health instruction as determined by pupil growth in knowledge and attitude. Ed. D. in Health Education, 1971. 123 p. (W. H. Greene)

797. SMITH, Honora B. An investigation of the spectrum of styles utilizing simulation and the interaction analysis technique. Ed. M. in Physical Education, 1971. 57 p. (M. Goldberger)

798. SMITH, Lois A. The effects of muscular fatigue and strength increment on the learning and performance of a gross motor task. Ed. M. in Physical Education, 1971. 98 p. (R. A. Berger)

799. STAUFFER, Robert W. The effects of sleep deprivation on dynamic strength and stamina. Ed. D. in Physical Education, 1971. 66 p. (R. A. Berger)

University of Tennessee, Knoxville, Tennessee (E. K. Capen)

800. ALLEN, James P. A plan for development of athletic and recreational facilities at Powell High School. M. S. in Physical Education, 1971. 51 p. (S. A. Venable)

This study dealt with planning for the development of athletic and recreational facilities at Powell High School, Powell, Tenn. Literature on site planning, including such areas as parking facilities, grading and drainage, fencing, water needs, lighting standards, survey and planning, and walkways was reviewed. The writer reviewed specific areas such as tennis courts, the running track, the baseball field, the field games areas, multi-use areas and the landscape park. Needs of the school were determined and 3 different plans of development proposed. Each plan included a football field with spectator seating, a baseball field, a running track, tennis courts, parking areas, a multi-use area, a field games area, and a landscape park. The writer felt that by proposing the 3 different plans, school administrators would have greater flexibility before deciding upon a final course of action. Procedures were presented for developing not only this particular site but also similar developments.

801. BIRMINGHAM, Margaret W. A comparison of attitudes toward physical education of women with coeducational class experience and women with noncoeducational class experience. M. S. in Physical Education, 1971. 29 p. (D. B. Cleland)

The Wear Attitude Inventory was administered to 90 college women enrolled in PE activity classes. The coeducational group of 60 students had had 3 or more coeducational classes and zero or one noncoeducational class. The noncoeducational group of 30 Ss had had 3 or more noncoeducational classes and zero or 1 coeducational class. The t test used to analyze raw scores obtained on the attitude inventory indicated no significant difference existed between the 2 groups in attitude toward PE ($p > .10$).

802. BOROVIAK, Lawrence A. A preliminary electromyographic investigation: The variability of integrated myoelectric potentials of the biceps brachii muscle using multiple bipolar surface electrodes. Ed. D. in Physical Education, 1971. 85 p. (E. K. Capen)

The purposes of this study were threefold: to determine the variability of integrated electromyographic potentials of the biceps brachii muscle; to determine the effects of longitudinal positioning of bipolar surface electrodes on the variability of integrated myoelectric potentials during isotonic elbow flexion; and to determine the relationship between various levels of isotonic resistance and the integrated electromyographic potentials. Three adult male and 3 adult female volunteers had a total of 720 electromyograms recorded from 4 different longitudinal electrode positions using various levels of isotonic resistance. ANOVA indicated that

day to day variability of integrated electromyographic potentials was not statistically significant when tested during replicated experiments at all levels of isotonic resistance and across the 4 different electrode positions. Variability of integrated electromyographic potentials was statistically significant when the combined effects of electrode positioning, isotonic resistance, and subjects were analyzed. The variability of integrated myoelectric potentials increased with an elevation of isotonic resistance and decreased with a decline in isotonic resistance. This variability appeared to be proportional under both conditions. Those electrode positions furthest apart produced the greatest magnitude of myoelectric potentials. A high linear relationship existed between isotonic resistance and integrated myoelectric potentials. This proportional relationship was constant when recorded from any of the 4 surface electrode positions. Increases in the integrated electromyogram were not consistent for Ss when recorded from the 4 surface electrode positions.

803. CHAFFIN, Teresa F. A survey of student opinions concerning an elective physical education program for women at the University of Tennessee, Knoxville. M. S. in Physical Education, 1971. 54 p. (P. Boroviak)

Questionnaires were administered to a total of 742 women Ss. A preference was indicated for 2 hours credit for 2 class meetings per week. Team sports were specified as the most popular type of activity. Students indicated a preference for a S's grading system. The 6 activities which received the greatest number of responses concerning the S's preferences were as follows: horseback riding, snowskiing, tennis, exercise and figure control, bowling, and water skiing.

804. DONNELLY, Donna L. A comparative study of authoritarianism between physical education majors and members of student activist groups. M. S. in Physical Education, 1971. 34 p. (R. Holt)

The California F Scale was administered to 80 undergraduate PE majors and to 60 undergraduates who were members of organized student activist groups. Analysis of data was by the t test. An initial test of homogeneity of variances indicated that the 2 variances were heterogeneous; therefore, a "psuedo t" test was used. The difference between sample means was found to be significant at the .05 level. PE majors were more heterogeneous and more authoritarian than were the members of the student activist groups.

805. FICK, Pamela. The effects of modern dance classes upon the observable behavior of a selected group of schizophrenic women confined to Eastern State Psychiatric Hospital. M. S. in Physical Education, 1971. 56 p. (H. B. Watson)

Data for the investigation were obtained on a special rating form, MACC II, constructed by Robert Ellsworth. The patients selected for use in this investigation were those who were schizophrenic, those who were not in any activity, and those who were receiving no other therapy. One group of 15 was the control and the other group of 16 was to receive modern dance therapy. Results from this 10-wk. study revealed modern dance therapy was of value for these schizophrenic women and that modern dance did equip an individual with a means of communication. The calculated t value was 3.90, which was significant at the .0005 level.

806. FORDE, Anne D. The effects of public school camping on selected attitudes of fifth and sixth grade students. M. S. in Physical Education, 1971. 28 p. (C. Johnson)

The purpose of this study was to determine whether a 1-wk. public school camping experience resulted in changes of attitudes concerning school, teacher, self, friends, and environment. The Ss involved were 111 5th and 6th grade students from Knoxville City and County Schools, Knoxville, Tenn. An experimental group was composed of 52 5th grade students who participated in a 1-wk. school camping experience. A control group consisted of 59 6th grade students who were not subjected to the camping experience but rather followed their regular school program. A series of sematic differential measures were obtained for both groups prior to and following the 1-wk. camping experience of the experimental group. The results were recorded and compared. According to t-test analysis, there were no statistically significant differences in the pre- and post-camp attitudes of the 111 Ss tested.

807. HILL, Martha E. A comparative study of knowledge and understandings in physical education between participants and nonparticipants in a high school physical education program. M. S. in Physical Education, 1971. 30 p. (C. Johnson)

This study was concerned with knowledges and understandings of basic PE concepts of participants and nonparticipants in a regular HS PE program. The AAHPER Cooperative PE Test (Form 2A) was the criterion by which the knowledge and understanding of PE were measured. Nonparticipants scored higher on a knowledge and understanding test of basic PE concepts than did participants in a regular PE program.

808. LOCKE, Gail D. A comparison of physical fitness scores between children of different socioeconomic groups. M. S. in Physical Education, 1971. 40 p. (N. E. Lay)

Fifth and 6th grade children (N=337) from 4 selected Knoxville City Schools were administered the Kraus-Weber Test on a pass-fail basis. After testing, the Ss were classified as to socioeconomic group (lower, middle, upper), by use of the Edwards' Occupation Scale. Comparisons were made by socioeconomic groups, by sex, and by schools. All data were compared on a % basis. It was found that the upper socioeconomic class performed better on the Kraus-Weber Test. The flexibility item recorded the highest number of failures in all three groups. The lower class had the greatest number of multiple failures. It was also found that the girls of the sample scored better in 3 of the 4 items measured: % of test failure, % of incidence of failure, and % of flexibility failure. Children in the upper class were able to perform simple fitness items with less failures than either the middle or lower classes. Girls, not discriminated by socioeconomic class, showed less test failures.

809. MCCRACKEN, Robert J. Proposed outdoor perceptual-motor apparatus for Daniel Arthur Rehabilitation Center, Oak Ridge, Tennessee. M. S. in Physical Education, 1971. 77 p. (S. A. Venable)

Outdoor perceptual-motor apparatus for Daniel Arthur Rehabilitation Center was designed and planned. This center serves 220 children who suffer from various mental, physical, and emotional handicaps. The need for this apparatus was supported by findings of both the writer's review of literature and the observations and testing of the PE staff at the center. These findings indicated that children suffering from various mental, physical, and emotional handicaps could also be expected to have perceptual-motor problems. With no existing outdoor apparatus at the center and only limited indoor perceptual-motor apparatus, it was felt that the most efficient and economical way to serve the perceptual-motor needs of these Ss was the development of outdoor perceptual-motor apparatus. The designing of the apparatus was based on the research and theoretical concepts of authorities in the field of perceptual-

motor learning and literature from institutions with existing perceptual-motor apparatus. The writer proposed that the designed apparatus be constructed as soon as possible, and that after the construction, an extensive testing program be conducted to determine if the apparatus develops those perceptual-motor areas for which it was designed.

810. MONCIER, Janice L. A comparison of calcaneal length in relation to tibial length of Negroes and Caucasians. M. S. in Physical Education, 1971. 29 p. (P. Boroviak)

An investigation of calcaneal length relative to tibial length in Negroes and Caucasians was made. Ss were 25 cadavers made available to the University of Tennessee. Measurements were made of the length of the tibia and calcaneus by the use of a Vernier caliper and a stainless steel ruler. Through the use of the z score, the calculated values showed no statistically significant difference in calcaneal length relative to tibial length in Negroes and Caucasians.

811. MULLIS, David W., Jr. A survey of male student opinions relative to selected aspects of the voluntary physical education program at the University of Tennessee at Knoxville. 1971. 53 p. (B. A. Plotnicki)

Male student opinions were sought concerning the election of PE on a voluntary ba s, evening classes, credit hours, number of class meetings per week, a 2-hr. block schedule, preferred grading system, coeducational activities, theory or appreciation courses, and favorite type of activity. Also, students were asked to select from a list those activities which they would be interested in electing. The results were as follows: 90% indicated that they would elect PE voluntarily if courses of interest were offered; responses to evening classes were negative; students preferred that classes meet 2 days per week for 2 hrs. credit; a pass-fail grading system was favored; more coeducational activities were desired; theory or appreciation courses were unpopular; and team sports were the favorite type of activity. Tennis, basketball, handball, golf, bowling, skin and scuba diving, and volleyball were the most frequently chosen activities on the check list.

812. OSBORNE, Murphy M. A study of differential accuracy phenomenon in a sport skill performance and its implications for learning. Ph. D. in Physical Education, 1971. 80 p. (A. J. Kozar)

College male students (N=90) enrolled in a beginning tennis class rated 6 specific movements involved in the performance of the Eastern forehand tennis stroke. The tennis strokes rated were presented in 16 filmed slow motion sequences. The investigation was designed to determine the relative ability of a rater to identify accurately correct and incorrect movements; the effects of the rater's own skill in the movement evaluated upon the accuracy of his ratings; and the effects of a combination of auditory and visual feedback upon the accuracy of ratings. Results indicated that the raters were more accurate in identifying movements which were performed correctly than those which were performed incorrectly, a finding previously termed the Differential Accuracy Phenomenon. No significant differences in the overall accuracy of ratings could be linked with either feedback or skill of the rater.

813. PATTERSON, Alan H. An investigation of the relationships of four aspects and applications of human strength. Ed. D. in Physical Education, 1971. 63 p. (E. K. Capen)

A strain gauge finger ergometer which had proven reliable in previous pilot studies was used to ascertain the interrelationships of isometric strength, isometric muscular endurance, isotonic strength, isotonic endurance and isotonic strength following varying numbers of isotonic

executions. Data from 13 experienced Ss indicated that all correlations between various strength measurements were significant ($p<.01$), 5 of the 6 calculated correlations were .85, isometric strength and isotonic endurance were linearly related, and strength was 1 common trait or ability regardless of the manner in which it was applied.

814. POWELL, Terrell W. A study to determine the relationship between grip strength and baseball slugging percentage. M.S. in Physical Education, 1971. 33 p. (B. A. Plotnicki)

Literature was reviewed which pertained to strength and baseball hitting, general strength and other sports, grip strength and grip strength testing. Nineteen college baseball players from the University of Tennessee at Knoxville and Berry College of Mount Berry, Ga. were given a grip strength test. Results of the test were correlated with the slugging % and batting average of the Ss. It was found that grip strength had a negative coefficient, -.09, with slugging percentage and a coefficient of correlation of -.32 with batting average. It was concluded that factors other than grip strength determined the Ss' ability to be successful batters.

815. SIGLER, Lloyd F. Obesity and weight loss: A case study and comprehensive review of the literature. M.S. in Physical Education, 1971. 39 p. (E. T. Howley)

The purpose of this study was to find if a reasonable exercise program could be combined with simple dietary information to produce a weight loss in an obese individual. A comprehensive review of the literature was also conducted to determine the effects of other weight loss programs. The S in the study was a 51-year-old male who weighed 302 pounds. Through a simple exercise and diet program the subject lost 28 pounds in 22 wk., representing a total caloric deficit of 98,000 kcal. A dietary restriction of approximately 500 kcal a day accounted for the bulk of the caloric deficit (77,000 kcal). A walking program which totaled 138 miles was responsible for the balance of the caloric deficit. The S was also able to reduce his heart rate by an average of 14 bpm at each of 4 progressive work loads on a standard treadmill test. A realistic exercise program combined with simple dietary information can effectively reduce weight in an obese individual.

816. STANDRIDGE, Janis O. The effect of mental, physical, and mental-physical practice in learning the whip kick. M.S. in Physical Education, 1971. 50 p. (N. Lay)

This study was conducted to discover which of 3 practice schedules would be the most effective in learning the whip kick. The physical practice group actually swam 5 lengths of a 25-yard pool for 8 practice sessions. The mental practice group visualized swimming the same 5 lengths of the pool each practice session with the aid of the following: taped coaching cues, American Red Cross chart on the whip kick, 5 posters made from the chart, and a printed sheet of instructions and cues. The mental-physical practice group followed the mental practice schedule for 4 practice sessions and the physical practice schedule for 4 sessions. The physical practice group improved the most, followed by the mental-physical and mental practice groups. As there was no statistical difference in the means of the physical and mental-physical practice groups, it appears that a combination schedule of mental and physical practice can be as effective for learning the whip kick as physical practice alone. Mental practice alone did not prove as effective as the other 2 methods.

817. TAYLOR, Wayne G. The effectiveness of instant videotape replay as a source of immediate visual feedback upon learning or improving performance of a gross motor skill. E. D. in Physical Education, 1971. 63 p. (A. J. Kozar)

The purposes of this study were twofold: to test the effectiveness of instant videotape replay (VTR) as a source of immediate visual feedback in gross motor skill learning; to determine the effect of initial skill level on the use of VTR. Male Ss (N=48) were randomly assigned to 1 of 4 exp. treatment groups on the basis of their initial skill level in executing the whip kick, as determined by judges' ratings. ANOVA showed significant Fs ($p<.05$) for main effects of VTR, verbal feedback, and skill level. A test for critical difference was used to test for differences between pairs of group Ms and between pairs of group Ms at each of the 3 skill levels. For Ss of high skill level, the 4 treatments--VTR-verbal feedback, VTR feedback, verbal feedback, no feedback--were equally effective when attempting to improve performance in the whip kick. For Ss of low skill level, a combination of VTR and verbal feedback was superior to verbal feedback or no feedback when attempting to learn to execute the whip kick. A combination of VTR and verbal feedback was significantly more effective than verbal feedback or no feedback when applied to learning or improving performance in the whip kick.

818. WRIGHT, Phillip H. A preliminary study of the status of physical education in the State of Tennessee. M. S. in Physical Education, 1971. 101 p. (A. J. Kozar)

A descriptive analysis of 375 JHS and SHS in the state of Tennessee was undertaken to determine the quality of the PE programs in the schools of the state, based on a questionnaire to which 76.8% of the schools responded. From analysis of the data, it was determined that the PE programs generally met the requirements established by the State Department of Education. However, adapted programs, aquatic instruction, and intramural programs were in need of improvement.

The University of Texas at Austin, Austin, Texas (L. W. McCraw)

819. BAYLOR, Terry Leland. Comparison of heart rates of two groups of mentally retarded males. M. Ed., 1971. 79 p. (D. Burdeshaw)

Two groups of 12 institutionalized, trainable mentally retarded males ranging in age from 137-178 mo. and 221-257 mo. were monitored with a transistorized cardiotachometer under the following conditions: an initial $4\frac{1}{2}$-min. supine resting phase, a 30-sec. supine anticipatory phase, a 12-min. progressive load-working phase while running on a treadmill, and a 10-min. supine recovery phase. A single classification ANOVA and an ANOVA for trend components revealed no significant differences in HRs as a function of chronological age. The overall nature of the cardiovascular response for mentally retarded males seemed to be typical of those that appear in a person of normal intelligence.

820. BERLANGA, Carrell Grigsby. The relationship between measures of intelligence, motor ability, athletic ability, and motor learning in educable mental retardates. M. Ed., 1971. 46 p. (L. W. McCraw)

Thirty institutionalized EMR boys and girls, ages 10-16 yrs., were given 60 trials over a 10-day period on 2 learning tests as follows: the no. of times the S could skip a rope while turning it himself during a 15-sec. period, and the score made while tossing a volleyball over an eye-level bar at a concentric, horizontal target. There was significant learning on both motor tasks, and a correlation analysis revealed moderate relationships between intelligence as measured by the Wechsler Intelligence Scale, motor ability as measured by selected items of the

Brace Motor Ability Test, and athletic ability as measured by the 25-yd. dash, softball throw for distance, and standing broad jumps.

821. DOOLEY, Marilu. Facilitation of the patellar tendon reflex of females with Down's Syndrome. M. Ed., 1971. 65 p. (W. Wyrick)

The primary problem was to ascertain if a physical Jendrassik contraction could facilitate the patellar tendon reflex of 28 Down's Syndrome mentally retarded females in the Austin State School for the Mentally Retarded. Measurements were taken with Lafayette knee-reflex apparatus, a TECA electromygraph oscilloscope, a push-and-pull manuometer, and a surprise puzzle box. Analysis revealed subjects were inconsistent from trial to trial on reflex latency and reflex magnitude, reliable patellar tendon responses, facilitation of reflex latency, and increase of reflex magnitude of patellar tendon reflex as result of maximum Jendrassik contraction and lack of facilitation of the patellar tendon reflex as result of solving a puzzle requiring manipulation of the hands and fine movement.

822. DUNCAN, Ann Morris. An electromyographical study of response times to a kinesthetic stimulus. Ph. D., 1971. 173 p. (W. Wyrick)

Four response measures, ipsilateral reflex time (IRT), ipsilateral premotor time (IPT), contralateral reaction time (CRT), and contralateral premotor time (CPT), were compared under 2 measurement conditions of alone and bilateral using 30 college male students and a kinesthetic stimulus of the fall of the relaxed ipsilateral arm from electromagnets. Fifteen blocks of 3 trials each were obtained under the 2 measurement conditions. Two trials per block were taken in the alone (A) condition (ipsilateral alone and contralateral alone), and a third trial from each block was obtained in the bilateral (B) measurement condition and included response measure from both the ipsilateral response and the contralateral response on the same trial. The analysis revealed the overall Ms for CRT were somewhat slower than those reported using a similar stimulus; the IPT was significantly faster in the B measurements than in the A conditions; responses from the ipsilateral limb were in every case faster than those in the contralateral limb; and the ipsilateral response, unlike the contralateral response, was characterized by rapid initial firing of the muscle action potential followed by another more continuous burst of activity.

823. ELKINS, Claire Beth. Survey of cigarette smoking habits and knowledge of students at St. Stephen's School. M. Ed., 1971. 85 p. (J. H. Haag)

A questionnaire was administered to 78 girls and 118 boys enrolled in grades 8 through 12 to ascertain their smoking habits, the student's familial smoking status, extent of student participation in school activities, reasons for smoking or not smoking, parents' attitude on smoking habits, and their knowledge of the effects of cigarette smoking on the human body. At the time of study, 32 of the girls and 28 of the boys were smokers and their responses indicated that they participated less in school activities than did nonsmokers, were more likely to have fathers and mothers who smoked, smoked because they enjoyed it, had knowledge of and were concerned about the harmful effects of smoking, and would probably continue to be smokers in the future.

824. HAYS, Joan Camille Francis. The contribution of beginning modern dance to cardiovascular fitness in college women. M. Ed., 1971. 158 p. (D. Burdeshaw)

Pre- and post-test measures were obtained through the use of the Astrand-Ryhming Submaximal Bicycle Ergometer Test and the Cooper 12-min. Run on 15 college women from each of 4 classes as follows: beginning

gymnastics, beginning modern dance, and a sedentary health lecture class. HRs were monitored throughout a semester on individuals in the beginning modern dance and beginning gymnastics classes through the use of radio telemetry. No group improved significantly on the ergometer test, while only the gymnastic group improved significantly on the 12-min. run. The M HR of 130 bpm in the gymnastic class and 118 in the modern dance class were not considered sufficiently high to result in improvement in cardiovascular fitness.

825. MATLOCK, Rosalie Stevenson. Sportsmanship attitude responses of ninth grade students toward selected situations in competitive sports. M. Ed., 1971. 58 p. (M. B. Alderson)

A 27-item sportsmanship inventory indicating approval or disapproval of specific incidents in sports was administered to 3,336 9th grade students in the Austin public schools. A class X^2 revealed no significant differences in attitudes as a function of sex, socioeconomic level, and degree of participation experience or spectator experience in football, basketball, and baseball.

826. McMIKEN, Donald Fraser. Aerobic requirements and maximum aerobic power of trained athletes in treadmill and track running. M. Ed., 1971. 77 p. (J. T. Daniels)

Eight highly-trained, male varsity track men were measured to determine differences in aerobic requirements and maximum aerobic power during treadmill and track running. Ss participated in both treadmill and track running, in a discontinuous series of 3 speeds and at maximum effort. Treadmill and track running order was randomized and tests administered on separate days. Expired air was collected from the runner by the Douglas bag technique and subsequently analyzed by the Lloyd-Gallenkamp technique. Significant and high correlations were obtained for the following comparisons: $\dot{V}O_2$ max. and body wt. (r =.83), treadmill and track determination of $\dot{V}O_2$ max. (r =. 95) and $\dot{V}O_2$ and speed of running (r =.91).

827. PARKER, Elizabeth Rae. The effects of a gymnastics program on the orientation and mobility skills of young visually handicapped children. M. Ed., 1971. 86 p. (W. C. Chasey)

Eight boys and 7 girls participated in a 5-wk. program of gymnastics consisting of tumbling, trampoline, and balance beam and 7 boys and 8 girls, under the same instructors, participated in nonphysical activities, such as playing games, reading stories, singing songs. Pre- and post-test measurements were obtained through the use of the modification of the Orientation Mobility Scales for Young Blind Children (Lord, 1967). The t revealed that the mobility and balancing skills of visually handicapped children do not improve significantly as a result of a gymnastic program, while the orientation skills of such children do improve significantly.

828. TORRANCE, Ella Shelby Frizzel. Undergraduate health education in approved teacher education programs of selected Texas colleges and universities. M. Ed., 1971. 157 p. (J. H. Haag)

College catalogs and other materials were used to determine the status of HE at the undergraduate level in 11 of 53 institutions in Texas with approved teacher education programs. The examination revealed serious inadequacies and variations in course offerings, textbook and library references, curriculum, facilities, methods of instruction, instruction materials, and the training, experience, and professional activities of the faculty.

The University of Texas at El Paso, El Paso, Texas (D. H. Hardin)

829. BOYD, Noelle Schuyler. A study of selected measures as predictors of success on the uneven parallel bars. M. S. in Physical Education, 1971. 40 p. (D. H. Hardin)

Height, wt., toe touch flexibility, flexed arm hang, bent leg sit-ups, right and left grip strengths, roll and balance test, and vertical jump were used as predictors of ability on the uneven parallel bars for 150 SHS girls. Data were analyzed using multiple correlation and linear regression techniques to test the predictive value of the variables on uneven parallel bar performance. The only effective single predictors were the vertical jump, flexed arm hang, wt., and bent leg sit-ups. These were significant ($p<.05$), but the relationships were all very low. The only statistically significant combination of tests was the vertical jump and flexed arm hang ($r=.38$). The predictors (vertical jump and flexed arm hang) were weak and not adequate for selection of gymnasts when used for that purpose.

830. BRAME, Ray Elmer. An investigation of the effect of motor visual perceptual skill training on the reading achievement of primary grade school children. M. A. in Physical Education, 1969. 60 p. (D. H. Hardin)

First grade children (N=20) from one homogeneously grouped classroom were assigned to 3 different groups. Group E (N=6) received a specialized program of PE instruction; Group C (N=5) received a special reading readiness program, and control Group R (N=9) received no specialized instruction for 9 wks. Statistical analysis revealed there were no significant differences in reading achievement levels of the 3 groups. A median test with X^2 was applied to the scores of the 3 groups on the Silvaroli Reading Test ($p>.05$). There was no relationship between visual, motor, and perceptual skill training and reading achievement levels of primary children possessing average to high-average levels of intelligence. Scores obtained from the Visual Motor Gestalt and Draw-A-Person tests indicated that Ss with different levels of intelligence may be receiving sufficient visual, motor, and perceptual skills training through their natural maturation processes, or that this kind of training has no effect on children with average to high-average IQ levels.

831. CHERRY, Aubrey Lee. An evaluation of the usefulness of two selected basketball skills tests in the light of recent changes in the style of play. M. S. in Physical Education, 1969. 40 p. (D. H. Hardin)

Basketball players (N=37) from 4 SHS and (N=23) from 2 8th grade teams were administered the Johnson Basketball Ability Test and the Knox Basketball Test, alternating trials of each test. Rank-order correlations of the test performances with the coaches' subjective ranking of players and also the coaches' ranking with the hts. of the players were employed. Spearman's rho coefficients ranged from -.20 to .70 for the Johnson Test and the coaches' ranking in the SHSs, with .83 and .50 for the intermediate schools. The r_s for the Knox Test and the coaches ranking ranged from -.10 to .74 in the SHSs and was .46 and .50 in the intermediate schools. The r_s for coaches' ranking and player height ranged from -.52 to .18 in the SHSs and was .47 and .12 in the intermediate schools. Data obtained indicated doubtful value in using either or both of the tests to rank basketball players. There was some indication of the tests' value as a motivator to further develop certain basketball skills.

832. HARRISON, Larry Ray. The effects of weight reduction on personality inventory test score profiles of varsity wrestlers at the University of Texas at El Paso. M. S. in Physical Education, 1970. 46 p. (D. H. Hardin)

Varsity collegiate wrestlers (N=9) were tested with the Guilford-Zimmerman Temperament Survey, and (N=7) with the California Psychological Inventory, before and after losing 5% of their body wts. while making wt. for wrestling. The purpose was to determine if there were any significant changes in the psychological test profiles associated with making wt. for varsity competition. A significant decrease between pre- and post-test M scores was found on the responsibility (Re) scale of the CPI, but there were no significant changes found on any of the other traits measured by these 2 tests. Although the results yielded a significant difference between pre- and post-test M scores on only the responsibility scale of the CPI test, the individual test score profiles, in many instances, showed much variation between the pre- and post-test scores.

833. MEREDITH, Ruth M. The effect of socioeconomic background on the health knowledge of college freshmen at the University of Texas at El Paso. M. S. in Health and Physical Education, 1970. 57 p. (D. H. Hardin)

The Kilander Health Knowledge Test was administered to 152 students prior to health instruction. Analysis of data indicated that the high income group (N=69) scored a M of 51.18 points while the low income group (N=83) scored a mean of 44.56. Tests were regrouped in order to compare the performance of a Mexican-American group (N=103) with an Anglo-American group (N=44), with computed results indicating means of 44.83 and 53.57 points, respectively. Further analysis revealed the Mexican-American group and the low income group to be nearly the same population, making it difficult to determine if a partial cause for low scores is the result of ethnic background or lack of income.

834. QUIOCHO, James Q. The effect of exercise on blood pressure in persons with cerebrovascular or cardiovascular disease. M. S. in Health and Physical Education, 1970. 40 p. (D. H. Hardin)

Adult male members (N=15) of the El Paso Central YMCA between the ages of 48 and 69 years who had circulatory diseases volunteered as Ss. The men were conditioned 3 days a wk., and were periodically tested during the 20-wk. conditioning period. Physical condition was evaluated using a 1-min. step test. Also, arterial blood pressures were recorded. Data were examined to evaluate the effects of an exercise program on 3 blood pressure measures. The resting and postexercise systolic and diastolic pressure Ms decreased significantly during the conditioning period. During a 2-wk. break in the program, the measurements reversed almost to the preconditioning level, but on the resumption of the exercise program made further decrease until the conclusion of the study.

835. SQUIRES, Mary Lou. Characteristics of women majors in a coeducational physical education department. M. S. in Physical Education, 1970. 51 p. (D. H. Hardin)

All women majors in the coed PE department of the University of Texas at El Paso were compared with all women PE majors in the women's PE departments of Ohio State University and Lamar State College of Technology. The Fricke Opinion, Attitude, and Interest Survey was used. Significant differences were found on 7 of the 11 scales of the OAIS: Intellectual Quality, Social Adjustment, Masculine Orientation, Business Interest, Humanities Interest, and Physical Science Interest. ANOVA and Scheffé's test were used to analyze the data. Significant

differences occurred between O. S. U. and U. T. E. P., and L. S. C. T. and U. T. E. P. in most cases. U. T. E. P. PE majors scored lower than PE majors of the other 2 schools on every scale except Masculine Orientation. A coed PE department does not attract girls who score lower on masculine orientation scales than departments of PE training women only. All of the group means obtained were in the average range of 20.00 to 80.00 reported by Fricke.

Texas A&M University, College Station, Texas (L. J. Dowell)

836. DICKSON, Curtis A. The effects of swimming instructional method on selected aspects of physical fitness. Ph. D., 1971. 139 p. (C. W. Landiss)

Male swimmers (N=66) were assigned to 2 instructional groups. One group participated in swimming only, using conditioning swim distances which progressed from 250 yds. to 1,000 yds., while the other instructional group performed a 5-min. swim for distance at the beginning of each class period supplemented with a series of weight training exercises. Ss met for 2 class periods each wk. during the college semester. Ss were pre- and post-tested on selected aspects of swimming proficiency and physical fitness. Both groups improved in swimming proficiency, cardiovascular endurance, and percentage of body fat but neither instructional method improved static upper body strength or static leg strength. Abdominal strength, endurance, and extent flexibility was improved with the swimming only method, while dynamic upper body strength, muscular endurance, and body wt. increased in the group supplemented with weight training.

837. SCHERRER, Donald Gregory. The effect of ingesting dextrose on human performance. Ph. D., 1971. 153 p. (L. J. Dowell)

On the basis of Cooper's 12-min. run and the Astrand-Ryhming bicycle test for predicting maximal oxygen consumption, 30 highly fit fresh. Ss were chosen. Each S performed a work bout 3 times, once after ingesting 100 gm of dextrose, once after ingesting a placebo, and a third time without ingesting anything. The work bout consisted of 5 all-out sprints on the bicycle ergometer against a 5 kpm resistance. Between sprints Ss rested briefly and then pedaled steadily for 4 min. Performance was significantly greater during the initial sprint when dextrose was ingested as compared to the performance when nothing was ingested. There were no differences on each of the subsequent sprints. The incidences of dizziness or nausea were no greater when dextrose was used. Anticipatory HR was no greater as a result of taking dextrose. A higher anticipatory response was associated with a relatively poorer performance during the later stages of the work bout.

838. SEMPER, Louis T. The effects of motivation on performance of individuals possessing selected personality characteristics. Ph. D., 1971. 146 p. (C. W. Landiss)

Ss (N=120) were selected from 650 male college freshmen who had taken a 16 factor questionnaire, with 30 Ss each representing the personality factors Schizothymia, Dominance, and Self-sufficiency, and 30 Ss serving as the control group. Ss were asked to give an all-out 1-min. ride on a bicycle ergometer under each of 3 motivational treatments; simple task instruction, simple task instruction and verbal reinforcement, and simple instruction and competition, each wk. for 3 wks. It was concluded that performance scores of a 1-min. all-out ride on the bicycle ergometer can be affected by motivational techniques and that performance scores of individuals possessing selected personality factors and athletic classification combinations can be affected by selected motivational techniques.

839. SPARKS, Charley W. The comparative effectiveness of two selected methods of progressive resistance exercises designed to improve knee joint stability. Ph. D., 1971. 137 p. (C. W. Landiss)

Male undergraduate students (N=60) were divided into 2 groups: those who had knee injury and had corrective surgery, and those who had sustained knee injury but who had not had surgery. Each group was divided into 3 subgroups: Elgin exercise group, single boot group, or control group. Leg strength measurements and leg circumference measurements were taken at the beginning of the experiment and at the end of the 3rd, 5th, 8th, 12th, and 15th wk. Leg strength of persons who have sustained knee injury and who either had or did not have corrective surgery can be significantly increased by use of prescribed exercise programs using the Elgin exercise or single boot method. Both programs were found to develop greater leg strength than no planned rehabilitation. Leg measurements of persons who have sustained knee injury and who either had or did not have corrective surgery can be increased by use of prescribed exercise programs using the Elgin exercise or single boot method. Both programs were found to develop greater leg measurements than no planned rehabilitation.

840. TAKACS, Robert F. Heart rate response of children to four separate bouts of running. Ph. D., 1971. 196 p. (C. W. Landiss)

Boys (N=96) in grades 1 through 6 ran 200, 400, 600, and 800 yds. on 4 consecutive days. HRs were monitored prior to, during, and for 5 min. after each of the 4 runs. It was found that HR responses to running are not proportional to the distance run; response to running is near maximal after 30 sec. of running regardless of the distance covered; runs in excess of 200 yds. produce near maximal HRs regardless of age and running distance; HR response to running is not directly related to age; all children, regardless of their physical fitness level, produce maximal efforts in runs of all lengths as determined by their HR responses; HR recovery from running is nearly complete after 1 min. 30 sec.; younger children tend to have a slower recovery from running, especially in longer distance runs; and HRs tend to be lower after 4 min. of recovery than prior to the administration of tests where equipment is being used.

841. YARBROUGH, H. Earl. Anticipatory heart rate response of subjects of varying levels of anxiety and physical fitness. Ph. D., 1971. 95 p. (C. W. Landiss)

Male fresh. (N=24) were selected from 658 fresh. on the basis of scores on the Taylor Manifest Anxiety Scale and the Astrand-Ryhming $\dot{V}O_2$ prediction test. Ss performed 3 rides of 30, 60, and 180 sec. on a bicycle ergometer at constant resistance. Ss were told the purpose of each test was to attempt to cover as much distance as possible in the allotted time. No difference was found between the anticipatory HR response of groups varying in anxiety levels, physical fitness levels, or treatments. There were no differences between the M of groups possessing varying combinations of anxiety, physical fitness, and treatments.

Texas Woman's University, Denton, Texas (A. S. Duggan)

842. ANDREASEN, Lois Elaine. A biography of Walter Terry with emphasis upon his professional career and his contributions to the field of dance. Ph. D., 1971. 399 p. (A. S. Duggan)

Emphasis was on the professional career of Walter Terry and his contributions to the field of dance as a writer, a lecturer, and a dance critic.

Terry served as a dance critic on the Boston Herald newspaper staff from 1936 until 1939, at which time he became employed as dance critic for the New York Herald Tribune until that newspaper terminated in 1966. Terry joined the staff of the Saturday Review as the first dance critic to write for a major American magazine. Of equal importance with Terry's contributions to the field of dance in terms of Young Men's and Young Women's Hebrew Association in New York City are the numerous books which he has written and materials for foreign countries. According to Terry, the critic's main purpose in the overall culture is the unceasing attempt to raise and/or establish the standards of art in America at a high level. In recognition of his work and dedication to dance as a writer, lecturer, and critic Terry has been awarded various honors acknowledging his outstanding contributions to the field of dance.

843. CLAVERIE, Elsa D. Changes in pulmonary efficiency and working capacity of asthmatic and nonasthmatic children in a swimming program. M.A. in Physical Education, 1971. 165 p. (C. Sherrill)

The relationship between participation in a swimming program and changes in pulmonary efficiency and working capacity was studied in 56 asthmatic and nonasthmatic boys and girls, aged 5 through 12 years, who were assigned to 1 of 4 equated groups. The asthmatic and nonasthmatic experimental groups participated 5 days a week for 4 weeks in a swimming program consisting of abdominal breathing exercises, swimming instruction, and blowing games. The asthmatic and nonasthmatic control groups adhered to their routine daily living activities. Prior to and after completion of the experimental period, pulmonary efficiency was measured by 1-sec. FEV_1 and MBC (13.5 liter Collins Respirometer); and submaximal working capacity (SWC-170) was estimated by means of a bicycle ergometer. Participation of asthmatic and nonasthmatic children in a swimming program for a period of 1 mo. did not contribute to a significant increase in pulmonary efficiency and working capacity.

844. DEWEY, Sharon L. Variability in maximum strength testing of university women. M.A. in Physical Education, 1971. 41 p. (J. Rosentswieg)

College women (N=100) were equally divided into an experimental group and a control group, to determine variability in maximum strength performance. Maximal strength efforts for women have been believed to be unreliable because women are supposed to give up before a maximum effort is made. The bench press was the lift measured. The experimental group was measured every other wk. for a period of 10 wk. The control group was tested twice, once at the beginning and again at the end of the 10-wk. period. Ss were unaware of their performance. ANOVA was employed to analyze the data. It was concluded that confidence can be placed on maximum strength testing scores of university women. Ss did not vary significantly in their bench press ability and thus it is believed that they did not give up before a maximum effort was made.

845. EDIE, Carol A. A study of muscle temperature during isometric and isotonic exercise. M.A. in Physical Education, 1971. 45 p. (J. Rosentswieg)

Muscle temperature in the quadriceps muscle was measured by a copper-constantan thermocouple in 2 college women and 2 college men. Ss did isotonic and isometric leg extensions at 20 lbs., 40 lbs., and 60 lbs. on the Universal Gym Machine. No significant difference was found between isotonic and isometric exercise when equated to load and time, although isotonic exercise had slightly greater increases in muscle temperature and slightly longer recovery periods.

846. FRANKLIN, Janice C. An experimental study of physical conditioning for asthmatic children. M.A. in Physical Education, 1971. 136 p. (C. Sherrill)
Asthmatic boys and girls aged 6-15 (N=26) were studied to determine the relationship between participation in a physical conditioning program and changes in pulmonary efficiency and aerobic capacity. Thirteen Ss participated in a physical conditioning program whereas 13 Ss adhered to their routine daily activities. Measurements were taken before and after the exp. period on the FEV_1, MBC, and SWC-170 tests. A significant increase occurred in aerobic capacity for the exp. group. Increases occurred in pulmonary efficiency but not significantly. It was concluded that participation in a physical conditioning program is desirable for asthmatic children.

847. GLASGOW, Martha Katherine. The relationship of perceptual-motor performance and intellectual performance in educable mentally retarded children. M.A., 1971. 54 p. (G. Hayes)
The investigation entailed a study of the relationship between perceptual-motor performance as measured by the Pearman modification of the Lincoln revision of the Oseretsky Motor Development Scale and intellectual performance as measured by the Wechsler Intelligence Scale for Children. Thirty-six mentally retarded children ranging in chronological age from 10 to 12 years and who possessed mental IQs between 50 and 70 served as Ss. A highly significant relationship existed between the 3 subgroup tests scores of the WISC and the Pearman modification of the Lincoln revision of the Oseretsky Motor Development Scale.

848. HALE, Sharon L. Specific conditioning programs and strength of junior high school girls. M.A. in Physical Education, 1971. 144 p. (J. Rosentswieg)
JHS girls (N=122) were placed into calisthenic, circuit training, and structured play (basketball) groups. The Strength Index was the test instrument used prior to and after completion of a 6-wk. exp. period to determine if 1 of the specific programs designed favored strength development. ANOVA indicated that no single program was more conducive than any other program to the development of muscular strength. Further analysis revealed that the calisthenic and circuit training groups improved significantly more than the structured play group on right grip strength, number of pull-ups, and arm strength. The same groups had significant improvement on leg lift strength, pull-ups performed, arm strength, and summed strength over the exp. period. The structured play group improved only on the leg lift strength test. It was concluded that different types of training programs contribute to strength development in varying amounts.

849. HELTON, Sandra S. A cinematographical analysis of performance of preschool children in sidewise walking on a low balance beam. M.A. in Physical Education, 1971. 133 p. (C. Sherrill)
Movies of 16 3-yr.-old children were taken and analyzed. The children were designated as either "bright" or "slow" by their preschool teachers through use of a rating scale. There was a preferred side evident for 14 of 16 children. All of the kinesiological similarities deviated from the correct form. Differences between the children were negligible. Common problems were the inability to maintain correct body alignment and the inability to perform sidewise walking equally well to the left and to the right. Girls performed better than boys. Sidewise walking cannot be used as a screening device for distinguishing between all bright and all slow children.

850. HILL, Mary. A cinematographical analysis of nationally ranked women discus throwers. M. A. in Physical Education, 1971. 81 p. (B. E. Lyle)

Five women discus throwers were filmed from the side-view and 2 of the 5 were filmed from the overhead view at 2 national track meets. A 16 mm Bell and Howell HR camera with a 1.6 wide angle lens was used. The following conclusions were made: maximum distance is related to the velocity at release when the angle of projection and the angle of inclination are optimum; the ideal angle of projection is determined by the velocity generated by the throwers; throwers who generate less velocity should release the discus at a higher angle of projection; the angle of inclination of the discus must be 32^{o} or less to achieve optimum distance; the ideal angle of incidence is 4^{o} to 10^{o} below the angle of projection; the fastest time across the circle does not always result in the greatest distance attained; and the velocity generated by the highly skilled thrower is greater when the throwing arm lags farther behind the body.

851. LEFEVERS, Victoria A. Volitional control of heart rate during exercise stress. Ph. D. in Physical Education, 1971. 134 p. (J. Rosentswieg)

Volunteer college women (N=35) were divided into 3 groups to determine if HR could be conditioned instrumentally and lowered during exercise stress on the treadmill. The 3 groups were composed of 15 Ss who received instrumental conditioning with visual feedback--Exp. Group I; 9 Ss who received instrumental conditioning with no visual feedback--Exp. Group II; and 11 Ss who received no conditioning--Control Group. All experimental Ss experienced 10 days of instrumentally conditioned learning, attempting to meet the criterion; lowering the HR 10% of the resting heart rate upon 3 of 4 trials presented each day, for 2 consecutive days, while in the resting position. After the conditioning period, the conditioned stimulus for HR lowering was presented to all Ss in each of the 3 groups upon 4 levels of exercise stress: HR 100-120 bpm, 120-140 bpm, 140-160 bpm, and 160-180 bpm. ANOVA and Duncan's Multiple Range Test yielded significant differences between Group I and Control Group at all levels, and between Group II and Control Group at each level except 100-120 bpm ($p<.01$). It was concluded that volitional control of HR may be successfully accomplished under exercise stress. Control of the HR in a resting state appears to transfer and facilitate HR lowering under exercise stress.

852. LILLY, Luella Jean. A comparative study of a horizontal and a vertical body position as a method of training college women competitive swimmers to perform the flutter kick. Ph. D. in Physical Education, 1971. 204 p. (M. Hinson)

Four trials of 25-yds. kicking were administered to 11 college competitive swimmers and 11 former competitive swimmers. Each group was subdivided into a horizontal and a vertical training group. The horizontal and vertical groups practiced identical programs except that the program was less stringent than for the former competitors for the competitive groups. Ss practiced for 15 min., 5 days a wk. for 3 wks., rested for 1 wk., and practiced for an additional 2 wks. The 2 vertical groups were filmed from a frontal and lateral view to determine changes in ankle flexion, flexion-inversion, and velocity of the legs. ANOVA of the speed tests indicated significant differences for trials and trials by position ($p<.005$). Scheffe's test revealed the significance as the competitive vertical group ($p<.05$) and the former competitive vertical group ($p<.01$). A film analysis indicated a significant difference in both groups for velocity of the legs ($p<.05$). Neither group had a significant change in ankle flexibility or ankle flexion-inversion.

853. McCLUSKEY, Marie M. A study of the relationship of creativity and two perceptual types, the haptic and the visual, in three selected groups of college students in the respective disciplines of Dance, Drama, and Physical Education. M. A. in Dance and Related Arts, 1971. 106 p. (J. Rosentswieg)

Two tests thought to discriminate between haptic and visual perceptual types, the Quick Response Test and Visual Retention Test, and the Torrance Test of Creative Thinking Booklet B, figural form, including the factors of fluency, flexibility, originality, and elaboration were applied to 78 college Ss in the respective disciplines of drama (N=29), PE (N=25), and dance (N=24). No significant differences were found among the 3 groups on the Quick Response Test, or the fluency, originality, and elaboration factors of the Torrance test. Significant differences were found among 3 groups on the Visual Retention Test ($p<.01$), and the flexibility factor of the Torrance test ($p<.05$). It would appear that there is not a high relationship between perceptual type and creativity, and contrary to popular opinion, PE students may be more creative than students from areas of dance and drama.

854. MORRIS, Emma Richardson. A study of the readability of drug education material in grades five through twelve. Ph. D. in Health Education, 1971. 154 p. (D. J. Merki)

One hundred drug education pamphlets were examined and the predicted level of readability assessed by means of the Dale-Chall Formula for Readability. The pamphlets tested revealed a high % of technical and repetitive materials. Investigation further indicated that much of the material was not within the readability levels of the proposed drug education program grades in Texas. Implications are that school districts will be limited greatly in their selection of supplementary materials, as almost half of the pamphlets were assessed above the 12th grade level. Attention is drawn to the need for pamphlets written at the elementary and lower secondary level. Among the recommendations made relative to the findings was that the range of these materials should extend from K-12 and be written at the appropriate level for these students.

855. MYERS, Gertrude Ann. A study of the relevance of the score keys for the M scale (GZTS) and the Mf scale (MMPI). Ph. D. in Physical Education, 1972. 330 p. (B. Myers)

The general purpose of this study was to identify each item on the Mf Scale (MMPI) and the M Scale (GZTS) as a characteristic of masculinity, femininity, or equally characteristic of both, on the basis of opinions held by production assemblers, white collar workers, housewives, ele. school teachers, college teachers, and college students. A total of 1,352 respondents from a region bounded by a 60 mi. radius of the center of Dallas-Fort Worth, Texas was included. The responses were compared with X^2 and scoring keys were developed for each hypothesis tested. Conclusions indicated that the scoring keys for the M Scale (GZTS) appear to be valid, while the scoring keys for the Mf Scale (MMPI) are in need of reexamination if the Mf Scale is to be used as a measure of masculinity-femininity. The number of disagreements noted between the suggested scoring key and the indicated scale key depended upon the established classifications of the effector variable of the respondent.

856. PETERS, Roberta J. A study of the relationship of two extreme perceptual types, the visual and the haptic, with learning a novel gross motor skill for fourth and fifth grade elementary school students. M. A. in Physical Education, 1971. 60 p. (J. Rosentswieg)

Two tests thought to measure visual and haptic perceptual aptitudes, the Quick Response Test and the Visual Retention Test, were administered to 221 ele. school boys and girls. From the data, the extreme perceptual types were selected (N=30). The extreme groups were compared on the ability to learn to use the paddle ball apparatus. No significant differences were found between the 2 groups on the ability to learn a novel gross motor skill. Due to an apparent lack of validity of the 2 perceptual tests, no conclusion was drawn.

857. RICHARDS, Sylvia Pelt. A biography of Charles Weidman with emphasis upon his professional career and his contributions to the field of dance. Ph. D. in Physical Education, 1971. 442 p. (A. S. Duggan)

A biographical study was made of Charles Weidman which included information concerning his personal life, his family background, his formal education, his special study of various forms of dance; his professional career as a dancer, as a choreographer, and as a teacher; and his unique contributions to the development of modern dance as an art form and in education in the U. S. There are 9 chapters and appendices relevant to the study, as well as a classified bibliography of references used in the preparation of the report.

858. RICHARDSON, Peggy Ann. An analysis of psychomotor studies related to massed and distributed practice schedules in physical education, psychology, business education, and music education. Ph. D. in Physical Education, 1971. 176 p. (B. Myers)

The principle variables involved in massed and distributed practice schedules in reported research designs to determine the credibility of 14 generalizations cited in books related to theories of learning and books related specifically to motor learning were systematically explored. Of 433 studies examined, 262 were omitted from further analysis because they did not meet the established criteria. The remaining 171 psychomotor studies were subjected to a documentary analysis and an in-depth examination of the materials and methods employed. Data were collected and recorded on 2 forms: a summary of the study with an evaluation of the adequacy of the design, and a descriptive account of 14 variables related to massed and distributed practice schedules. Information reviewed pointed to the fact that the use of a specific practice condition was accompanied by restrictions. From the 14 generalizations cited, 5 were rejected; 1 was accepted; and 8 were based upon inconclusive results. Educators were warned against using current generalizations in learning textbooks to support the generic belief that distributed practice is superior to massed practice.

859. RIDGWAY, Mary E. Changes in serum lipids in women participating in a competitive volleyball program. M. A. in Physical Education, 1971. 61 p. (C. Sherrill)

Pretest and posttest measurements of serum cholesterol, serum cholesterol esters, serum phospholipids, and serum triglycerides were taken on 15 sendentary control women and 15 women volleyball players before and after a 16-wk. competitive volleyball program. There were no significant differences between the control and exp. groups on the pre- and post-tests with respect to any of the serum lipids measured.

860. SEARS, Barbara A. An historical study of selected popular beliefs and practices pertaining to pregnancy and childbirth in the State of Texas from 1845 through 1968. Ph. D. in Health Education, 1971. 390 p. (M. Hinson)

A history of popular beliefs and practices pertaining to pregnancy and birth, with emphasis upon the care given to the child-bearing woman,

in the State of Texas from 1845 through 1968 was undertaken. Focus of the investigation was upon the nature of the care available to pregnant women at a given time and in a given place, and the particular agency acting in her behalf--whether individual, group, midwife, physician, magic, folk medicine, science, or modern medicine. Findings revealed that obstetric progress has moved slowly from an era of ignorance and superstition to its present position--a highly scientific medical specialty. While care of the pregnant woman has improved considerably, progress has not been uniform among all peoples or in all localities. Human attitudes and behavior appear to be the main deterrents to decreasing maternal and infant mortality.

861. SEWELL, Betty Rae. A study of the temperament traits of drill team members and nondrill team students in six Texas high schools. M. A. in Physical Education, 1971. 99 p. (B. Myers)

A total of 239 drill team members and 262 nondrill team students from 6 Dallas SHSs participated in the study. Data were collected with the use of the Guilford-Zimmerman temperament survey. Results indicated that girls who participate in drill team organizations are significantly different from their counterparts who are not actually involved in drill team work with respect to certain basic temperament traits. Also, the results indicated that, with 2 exceptions, regardless of the socioeconomic level or racial character of the selected SHSs, girls who participated in their schools' drill team organization evidenced more positively developed personality structures than the girls who had not participated in such an organization.

862. SPRING, Marjorie J. The influence of various learning climates upon task involvement, reaction to authority, and peer interaction of kindergarten children. Ph. D. in Physical Education, 1971. 94 p. (B. Myers)

Fifty-six kindergarten children, 28 in each of 2 public schools in Stevens Point, Wis., were placed under an autocratic teacher or a democratic teacher. Video-audio tapes were made daily on each group of children for a period of 3 wk. and were viewed subsequently to determine task-involvement behavior of the children and the no. and type of instances of the children's reaction to authority behavior and peer interaction. Conclusions were as follows: Kindergarten children exhibit significantly more task-involvement behavior in PE tasks in a democratic learning climate than in an autocratic learning climate; democratic learning climate produces more task-oriented conversations, more self-direction, but fewer play-minded conversations than does the autocratic one; kindergarten children exhibit more leader dependent actions and more out-of-field conversations in an autocratic learning climate than in a democratic one; the autocratic learning climate appears to produce more discontent among the children than does the democratic learning climate.

863. STEWART, Sherri L. An historical survey of foxhunting in the United States. M. A. in Physical Education, 1971. 331 p. (C. Sherrill)

The growth and development of foxhunting in each part of the country from 1650-1970 was reported, and a detailed historical account of selected hunts which endured 50 or more years was written. A roster of the 318 hunts which have been registered with the MFHA or NSHA was developed. Questionnaires were mailed to Masters of the 117 hunts registered for 1970, and 55% were returned, providing data concerning the current status of foxhunting. Major influences--like urbanization, suburbs, inflation, barbed wire, modern transportation--which appear to have affected the popularity of the sport were analyzed. Findings showed that foxhunting experienced its greatest popularity from 1930-1939. Since

1940 the popularity of the sport has decreased in the eastern and central states, remained the same in the Midwest, and has increased in the South. At present, Pa., Va., Md., and N. Y. have the greatest number of registered hunts. More women, in 1970, engaged in foxhunting than men.

864. THOMAS, Sharon S. A study of four methods of prophylactic hand care for women gymnasts performing on the uneven parallel bars. M. A. in Physical Education, 1971. 51 p. (J. Rosentswieg)

The study investigated 4 methods of prophylactic hand care during the performance of a glide to a long hang on the uneven parallel bars. Four groups of college women (N=40) did 5 repetitions the first wk. and 15 repetitions the second wk. of the selected basic skill or until S received a blister. Groups were equated on the time that it took a blister to form on the soles of their feet by the application of solid carbon dioxide. There was no significant difference found between the following methods: commercial ice product (Johnson's and Johnson's Iceberg), carbonate of magnesium, or tape. There was a significant difference found between the use of palm guards and the use of carbonate of magnesium or the commercial ice product. It was concluded that the best method of prophylactic hand care was the use of palm guards, but that the use of tape was acceptable, although a costly technique.

865. YOULE, Tyann. A film analysis of toe-heel action during ground contact of women runners. M. A. in Physical Education, 1971. 49 p. (M. M. Hinson)

A film analysis was conducted on toe-heel action of 15 women runners competing in the mile run, 880-yd. run, 440-yd. dash, 220-yd. dash, and the 100-yd. dash at 2 national track meets. A 16 mm Bell and Howell HR camera with 1.6 wide angle lens was used. Initial contact with the ground was established by the following runners: 13 (87%) in the 100 and in the 220 with the ball of the foot, 8 (53%) in the 440 with a flat foot, 10 (67%) in the 880 with the heel, and 13 (87%) in the mile with the heel. Duration of ground contact was established by the number of frames elapsed. A definite relationship existed between toe-heel action and running speed. As the speed of the runner decreased, initial ground contact was established farther back on the foot and the duration of contact increased.

The University of Toledo, Toledo, Ohio (J. N. Drowatzky)

866. LEHMAN, Jean. Visual perception and information processing in cerebral palsied as contrasted with normal and mentally retarded children. M. Ed. in Physical Education, 1971. 57 p. (J. N. Drowatzky)

Twenty-eight cerebral palsied, 19 mentally retarded, and 30 normal Ss were tested for performance in 4 components of visual perception, figure-ground relationships, form constancy, spatial positions, and spatial relationships, and RT to light and auditory stimuli. All components of visual perception were found to be impaired in the cerebral palsied and independent in the cerebral palsied and mentally retarded Ss. The cerebral palsied showed slower RTs than the other Ss; it was suggested that this difference was due to an impairment in information processing.

University of Washington, Seattle, Washington (M. R. Broer)

867. DANIELSON, Barbara N. Participation by Athenian women in symbolic forms of movement during the sixth, fifth, and early fourth centuries B. C. as depicted in selected examples of Greek literature and art. M. S., 1971. 90 p. (M. Waltz)
Interpretation of secondary historical and primary literature and art evidence permitted examination of historical controversy over the role, position, and degree of social and personal freedom afforded Athenian women and the related question of the extent to which Athenian women participated in symbolic forms of sport, games, dance, and gymnastics. Athenian women enjoyed a substantial amount of freedom and participated in a variety of symbolic forms of movement. The most prevalent forms were dancing, running, archery, chariot driving, horseback riding, wrestling, and ritualistic forms symbolic of hunting and warfare. Opposing historical views of the status of Athenian women appeared to be related to differences in time periods. Findings supported the conservative view that Athenian women were considered inferior to men and their activities were curtailed to a greater extent during the 6th and early 5th centuries B. C. During the late 5th century and early 4th century B. C. the more liberal view of substantial personal and social freedom and increased tendency to engage in activity seemed more tenable.

868. EICKELBERG, Lorelei M. Foot preference of college men. M. S., 1971. 74 p. (M. R. Broer)
The Ss for this study were 50 college men voluntarily enrolled in PE. Ten tests used in previously conducted studies of foot preference of college women and 1st grade boys were chosen: the Turner and Fusek Pushing Tests, the Bass Stick Balance Test--Lengthwise, running jump for ht., kick for goal, running jump for distance, hop, turn and kick, step-up and a one-leg squat test. It was found that foot preference is exhibited by men to the same degree as by women and to a greater degree than by 1st grade boys; preference seems to be as specific to task for men as for women and boys; the greatest common preference for 2 or more tasks appears to be for the use of the same foot for kicking whether or not a turn is involved, of the kicking foot in the kick without a turn to hop and the take-off foot in the jump for distance to hop; many do not choose the same foot for take-off when jumping for ht. and for distance; there is no evidence of choice of foot on the basis of need for support or for manipulation.

869. FAHEY, Brian W. Basketball: A phenomenological perspective of lived-body experience. M. S., 1971. 140 p. (M. Waltz)
A theoretical construct in conceptual and interview form developed from an interpretation of Husserl's and Merleau-Ponty's phenomenological methodologies was used to determine essences and intrasubjective commonalities of lived-movement experienced in basketball of the investigator and 5 members of the men's intramural basketball team. Commonalities in experience included the following: variation of awareness is situational with game occurrence; conception of the passage of time varies with game situation which was directly related to the personal involvement and accomplishment of the individual; satisfaction is derived from working with others to achieve group goals; dependence is the primary view of self in basketball with a certain independence experienced in some situations; skill is directly related to the enjoyment and satisfaction derived from participation; excitement varies with game situation which seems proportional to level of competition experienced; awareness of changing spatial relationships of other players is more implicit than conscious. Essential phenomena of lived-experience included relevance,

necessity, purposefulness, dichotomy and conflicting purpose, directionality, complementation, and cooperation and identification.

870. HOOKER, Dorothy Dawn. Relative effectiveness of two sequences for presenting supinated parries to beginning fencers. M.S., 1971. 46 p. (M. R. Broer)

Twenty-nine control and 24 exp. Ss received beginning fencing instruction which was identical except that the control Ss were taught the easier high line parries prior to learning the more difficult low line parries, while the exp. Ss were taught the low line parries prior to learning high line parries. After 18 lessons each of 2 more highly skilled fencers performed a series of 10 specific attacks against which each S attempted to parry. All attacks and parries were filmed on a videotape and were later analyzed as viewed both in normal and slow motion. The Ss' general fencing ability was measured with a revised Bower Test. Results indicated that the presentation of the more difficult low line parries before the easier high line parries tended to lead to greater general fencing success following 10 wks. of beginning fencing instruction. Presentation of low line parries prior to those for the high line also tended to lead to less dropping of the hand while parrying, but to poorer point control when point control was not emphasized in the instruction.

871. MCVICKER, Carol Landa. The relationship of self-concept to use of space through locomotion. M.S., 1971. 101 p. (M. R. Broer)

College women (N=53) who reported no past experience in dance or gymnastics or such experience only at the beginning level prior to the 10th grade, were Ss. Measuring instruments included the Word Concept Scale Parts I and II, the Space Utilization Test, and a movement evaluation check list. Although some Ss expressed negative concepts, most of them tended to feel positive about themselves in terms of what they are like when they move, how they look, and what kinds of persons they are; there appears to be individual consistency in self-concept and space utilization; except in extreme cases, there does not appear to be a relationship between self-concept and space usage; past experience in ballet may have a positive effect on how college women feel they look and what they feel they are like in movement; there do not appear to be any specific movement characteristics which in all cases distinguish individuals with high self-concepts from those with more negative concepts.

Washington State University, Pullman, Washington (R. H. Doornink)

872. ARMSTRONG, Robert B. The influence of thyroid hormone on the colonic temperature of rats during exercise. M.S. in Physical Education, 1970. 33 p. (P. D. Gollnick)

Five male thyroidectomized rats were trained in motor-driven wheels until they were capable of running continuously for 1 hr. at 37.5 m/min. After the training period, colonic temperatures were measured with a thermistor probe at rest, during preexercise activity, and during work loads of 13.4, 26.8, and 37.5 m/min. The animals were then given daily injections of 2 ug/100 g body wt. of triiodothyronine (T_3) for the remainder of the exp. One wk. after the start of the hormone therapy, colonic temperatures were again determined under the conditions described above. Thiiodothyronine therapy produced a rise in resting temperature to a level approximately that of normal rats. The difference between resting temperature and final temperature when the rats were running at 37.5 m/min was almost identical before and after

hormone therapy. Thus, it appears that thyroid hormone is not essential for the increase in body temperature that accompanies exercise.

873. BARBER, Stuart M. The effect of success and failure on the aspiration level of low-fitness male university freshmen participating in the developmental program at Washington State University. M. S. in Physical Education, 1970. 121 p. (M. L. Enberg)

Twenty-four of an initial 46 Ss completed 4 testing bouts consisting of 30 sec. squat thrusts, 2-min. sit-ups, and pull-ups. Each test required the S to declare an immediate aspiration for the best score achieved during the program. The Ss were all students in developmental classes for low-fit students. On each test card, the S was informed of his immediate aspiration and performance score on the previous test. A graphical display of data revealed that success facilitated positive aspiration and discrepancy scores. Responses to failure were less consistent but generally led to a lowering of aspirations. Ultimate aspiration declared on any of the tests was not related to ultimate achievement. Those experiencing low performances and best progress did not exhibit the most absenteeism. Finally, those with higher aspirations did not appear to achieve higher performance scores.

874. BREEDING, Barbara A. A study of the relationship between physical activity participation and health service visitations of Washington State University students. Ph. D. in Physical Education, 1971. 166 p. (C. E. Gordon)

Ss were 295 students from the 1965 senior class, 17-25 yrs. of age, who had attended 4 consecutive yrs., had completed their PE requirement during the first 2 yrs., and were given a "no restriction" health rating by the student health service. Students were assigned groups according to sex and physical activity participation. Health service visitations were tabulated into 20 classifications. X^2 showed significant differences among the groups in upper respiratory infection; musculoskeletal; gynecological; eye, ear, nose; genito-urinary; and the nurse call, injections classification ($p<.05$). There were no significant differences in the no. or kinds of visits paid by the inactive men and women during the yrs. they were enrolled in PE activity classes compared to when they were not. The 6 classifications of most frequent visitations in descending order were: nurse call, injections; upper respiratory; musculo-skeletal; integumentary; gyneçological for the women; and emotional or psychiatric for the men.

875. CUDMORE, Brian D. Cultural diffusion in an ethnically heterogeneous college soccer club. M. S. in Physical Education, 1971. 55 p. (M. Phillips)

The degree of cohesiveness that an ethnically heterogeneous college soccer club exhibited was the phenomenon directly investigated, and equated with cultural diffusion. The test items used were the Group Cohesiveness Index and the Valency Questionnaire. The Ss were the 38 members of the Washington State University Soccer Club enrolled during the spring semester, 1971. Of these 38, 21 were citizens of the U. S. and the remaining 17 came from 14 different countries--thus creating an ethnically heterogeneous group. Ss completed the test items in an interview situation with the investigator. Cultural diffusion was found to be present in this group, since it achieved a highly cohesive score of 1.98 on the Group Cohesiveness Index. Moreover, the U. S. players as a group, and the ethnically different players as a group, expressed equal valency to the overall Soccer Club, which reinforced the conception of cultural diffusion being present.

876. DAVIS, June B. Personal rhythm and movement. M. S. in Physical Education, 1971. 115 p. (M. L. Enberg)

Five women in beginning modern dance classes and 5 members of the Washington State University Orchesis Club were selected on the basis of ratings received from 4 judges using the Coppock Rating Scale of Rhythmic Performance. The tests administered to Ss were: (1) TRMR; (2) DMAT-DMMT-DRT; (3) ART, VRT, HMT, FMT, BMT, and (4) RRR, RPR, (PRM_1, PRM_2), and (PRE_1, PRE_2, PRE_3). An anecdotal record was kept of noticeable physical reactions or indications of psychological effects during testing procedures. Both high and low rhythmic subjects had individual response characteristics. High rhythmic performance ability was found to be coincident with performance ability in the TRMR, HMT, FMT, BMT, and PRE_1, PRE_2, and PRE_3. The difference between high and low group results in PRE_1, PRE_2, and PRE_3 was assumed to be an indication of physical condition rather than rhythmic performance level. The DMAT, VRT, ART, and PRM_1 and PRM_2 did not distinguish high and low performers.

877. DAWES, Lewis I. The relative effectiveness of a supplementary isometric program for grade five pupils. M. S. in Physical Education, 1970. 43 p. (V. P. Dauer)

Three measures of hand, arm, and shoulder girdle strength were made of 22 male and 22 female 5th grade pupils. The exp. group of 11 boys and 11 girls and the control of 11 boys and 11 girls were randomly selected from a self-contained classroom unit. All Ss were pretested for grip strength as measured by the hand dynamometer, the flexed arm hang, and bench push-ups. Following this testing period the exp. group participated in a supplementary isometric exercise program conducted by their classroom teacher for 12 wks., while the control group did not. Both groups participated in all other regular school activities. A post-test showed 1 significant difference between the 2 groups favoring the exp. group in girls' right grip strength. It was concluded that the supplemental isometric program as administered in this study was not effective in the development of selected strength measures of 5th grade children.

878. DIXON, Joanne Lynne. Heart rate as an indicator of oxygen uptake during fencing. M. S. in Physical Education, 1971. 44 p. (M. Adrian)

Three average skilled women fencers 20 to 21 yrs. of age were given a bicycle test consisting of alternating periods of 5 min. rest and 3 min. exercise, beginning at a work load of 300 kpm/min. and increasing the work load 150 kpm/min. with successive exercise periods until the S could no longer exercise. The fencing test consisted of 5, 5-min. competitive bouts. Expired air was collected and HR telemetered during all tests. Conigrams of lead leg action recorded the amount of movement during fencing. Records of bout decisions were kept. Comparison of test results showed higher HR accompanied by lower O_2 consumption during fencing. O_2 consumption, predicted from bicycle data using HR during fencing, overestimated observed O_2 consumption during fencing by a M of 25%. Decisions and amount of movement during fencing did not noticeably affect HR. It was concluded that HR is not a valid predictor of O_2 consumption of average skilled women fencers during bouting.

879. ELDRIDGE, Raymond E. The relative effectiveness of two methods of placekicking a football. M. S. in Physical Education, 1971. 53 p. (R. H. Doornink)

Inexperienced kickers (N=53 college fresh.) and experienced kickers (4 Americans, 3 Englishmen and 1 Australian) were Ss. The inexperienced group was divided into a subgroup (N=30) which learned the American toe

kick and another subgroup (N=23) which learned the Rugby toe kick. A training period of 12 meetings over 6 wks. was carried on by both groups. The experienced group met 3 times a wk. for 4 wks. The first day was for practice, while testing occurred the 2nd and 3rd day. Alternate styles were used each wk. Testing for both groups consisted of measuring kick-off distance and try-for-point (8-yd. line) and field goal accuracy at the 15, 20, 25, 30, and 35 yd. lines. For both groups there were no significant differences between the two kicking styles in accuracy or kick-off distance.

880. FAIRCLOUGH, Jeremy B. Attitude of delinquent and nondelinquent male college freshmen towards physical education. M. S. in Physical Education, 1971. 57 p. (M. Phillips)

Voss's criteria of delinquent classification, using the Short and Nye 11-Item Self Reported Delinquency Scale, was modified to classify 531 fresh. Ss into delinquent and nondelinquent groups. The attitudes of the 2 groups towards PE, as measured by the Wear Attitude Inventory, were then compared by the Kruskal-Wallis 1 way ANOVA by ranks. There was no significant difference between the attitudes of delinquent and nondelinquent male college fresh. towards PE ($p<.05$).

881. FRANCIS, John W. The effects of training in underwater swimming, surface swimming and jogging on performance in the 600-yard run. M. S. in Physical Education, 1971. 28 p. (D. W. King)

Four groups of 12 male students were designated as control, joggers, surface swimmers and underwater swimmers. Each group was tested on the 600-yd. run prior to and immediately after training. Each group participated in 2, 1-hr. training sessions per wk. for 8 wks. The group Ms for pre- and post-test times were compared and significant ($p<.01$) decreases in times on the 600-yd. run were found. The underwater swimming group was significantly ($p<.05$) better than the surface swimming group on the posttest results. Thus, it appears that physical training in one activity (swimming) can significantly improve performance in an unrelated activity (the 600-yd. run).

882. GILLIES, Donald J. An outdoor education program for Whitman County elementary schools. M. A. in Recreation, 1970. 73 p. (V. P. Dauer)

This study found that 47 potential outdoor education experiences existed within Whitman County in the State of Washington. Six major areas of curriculum and related subareas were found to be essential for a program in outdoor education. The survey of schools revealed only 5 of the 17 ele. schools had participated in resident outdoor education. All principals expressed interest in the establishment of a Resident Outdoor Education Center in the county. A potential site for the establishment of a center was located between Rock Lake and Bonnie Lake in the northwest corner of the county.

883. GRANVILLE-MARTIN, Roger D. The effects of physical punishment on the learning and retention of a simple motor skill. M. S. in Physical Education, 1970. 62 p. (V. P. Dauer)

Volunteers (N=45) aged 18-20 were randomly assigned to the following groups: practice, with punishment for inaccurate trials; practice, with scores frequently displayed; and control, with no practice. The skill was a straight billiard shot made with the nondominant hand. Each test consisted of 10 trials at the skill. The practice sessions consisted of 8 sets of 10 trials at the skill, one set being taken very 10 min. The punishment was in the form of 1 blow to the buttocks with a wooden paddle for each trial that missed the target. The 3 groups were all subjected to

the same testing program. Posttests were taken immediately after practice and 1 wk. and 4 wks. after practice. Immediate acquisition of the skill was evidenced ($p<.01$) by both treatment groups, though there was no significant difference ($p<.05$) between these groups. One and 4 wks. later there were no significant differences ($p<.05$) between the 3 groups; learning and retention did not appear to be more effective under conditions of physical punishment than in a situation involving practice without punishment.

884. IANUZZO, Charles D. Hormonal involvement in the metabolic adaptations in the succinic dehydrogenase activity and mitochondrial protein of rat muscle following training. Ph. D. in Physical Education, 1971. 37 p. (P. D. Gollnick)

Trained and sedentary Sprague-Dawley albino rats that were normal, thyroidectomized, hypophysectomized, and diabetic were trained in motor-driven work wheels for 7-10 wks. Succinic dehydrogenase activity and mitochondrial protein were measured in the cardiac and gastrocnemius muscles. Succinic dehydrogenase activity and mitochondrial protein of the gastrocnemius muscle were greater for all the trained groups when compared with their sedentary controls. Training did not produce changes in the mycardium. Succinic dehydrogenase activity and mitochondrial protein of the cardiac and gastrocnemius muscles were significantly less in the hormone-deficient animals when compared with the normal sedentary group, with the exception of the mitochondrial protein of the thyroidectomized animals, which was unchanged. The findings indicated that increases in Krebs cycle enzymes and mitochondrial protein can occur with training in the absence of insulin, thyroid hormones, or pituitary hormones. Possible mechanisms and the physiological significance of these changes have been discussed.

885. KLUTH, Mary E. The effect of starting block height on the racing dive. M. S. in Physical Education, 1971. 43 p. (M. Adrian)

Eight girls between the ages of 13 and 16 who were competing in the National AAU Championships (1971) were tested. Ss performed 5 racing dives at each of the following heights: 21, 27, and 36 in. Motion pictures were obtained and an oscillograph was used in order to record data from a natograph and contact switches. ANOVA was used to compare 16 variables between block ht. Body angle at entry was the only variable that was significantly different among the 4 block hts., and it was found to increase as block ht. increased. Spearman rank order correlations were calculated for 15 variables, but significant correlations ($r=.01$) were not always obtained, probably because of the wide range in individual responses at the 4 block hts. The results showed that although no single ht. was optimal for all Ss, either the 30 in. or the 36 in. ht. was optimal for most Ss.

886. LANAWAY, Anthony D. A comparison of the effect of small group competition and small group cooperation of three soccer skill tests. M. S. in Physical Education, 1970. 91 p. (D. A. Coleman)

College freshmen males (N=72) assigned to 2 beginning soccer classes were structured into 4 subgroups per class with at least 8 members per group. The competitive class performed skill drills for points with the drills performed against time or an opponent. Results were posted on a score board. The cooperative class performed the same drills but with no external pressures. A coefficient of variance, ANOVA, Blalock's Dependent t Test and, where applicable, Duncan's New Multiple Range Test, were applied to the data. No significant differences were found after the 15 exp. sessions. There was an improvement in overall test

scores but the improvement was not significant. Insofar as this study was concerned, the use of cooperative or competitive type situations on small groups learning beginning soccer makes no significant difference to performance when measured by trapping the ball, shooting for accuracy, and dribble ball skill tests.

887. McCONNELL, Richard L. An evaluation of the present method of rating and assigning officials for the Washington State basketball tournaments. M.S. in Physical Education, 1971. 57 p. (R. C. Wiley)

Questionnaires were mailed to 150 SHS basketball coaches and 150 registered basketball officials in the state of Wash. A total of 121 coaches and 113 officials responded. The questionnaire was designed to obtain information in 5 general areas: opinions about regular season ratings of officials; opinions about tournament ratings of officials; opinions about state tournament assignments of officials; comments from coaches and officials about the rating and assigning of officials; and a ranking by coaches and officials of criteria used in the rating of officials. The r found judgment and consistency to rank highest, followed by control of game, knowledge of rules, mechanics, and experience, in that order. It was recommended that the present method of rating and assigning officials for the State Basketball tournaments be strengthened by an evaluative rating of basketball officials by coaches and by other officials; the use of a composite score; the establishment of a committee, with representation to include a coach, an official, and members of the WIAA to make the final recommendation for the assignment of tournament officials; and a revised rating form.

888. McKAY, Douglas F. The status of physical education in the high schools of Southern Alberta. M.S. in Physical Education, 1971. 51 p. (K. Penman)

In this study a comparison was made of the status of PE with that of 5 other subject areas taught in the school. The principals of 16 randomly selected SHS, both public and separate, were personally interviewed. There were 24 questions in the final analysis that were treated statistically, and 18 of these were significant ($p<.05$). The conclusion is that PE does not hold a position as high in status as the other subject areas taught in the SHS of Southern Alberta.

889. MELSON, Bobby J. The relationship of personal-social adjustment and self-image to physical fitness. M.S. in Physical Education, 1971. 42 p. (C. Gordon)

The 27 highest fit and 27 lowest fit students of the 638 who took the Cougar Physical Fitness Test were administered the CPI, and Secord and Jourad's Self-Cathexis Test. The t was used to determine differences between high and low fit groups on personal adjustment scores, social adjustment scores, total adjustment scores, and self-image scores. Results indicated that the high fit group was significantly superior in every aspect of personal adjustment measured by the CPI. The high fit group also had a higher M score on every category of the social adjustment scale, but only 3 of these scores were significantly higher. The high fit group appeared to have higher social standards, possess greater social skills, and have better occupational relations than the low fit students.

890. NIEMI, Donna L. Perseverance of women athletes and nonathletes. M.S. in Physical Education, 1970. 55 p. (M. Adrian)

Female fresh. and soph. students (N=39) were given the feminine interest scale from the CPI and 4 aspects of perseverance: mental, precision, physical discomfort, and a written endurance test, the EPPI. Ten participants of individual sports, 6 of team, and 5 who had participated in

multiple sports represented the athletic subgroups. ANOVA indicated the team and multiple sports groups persisted significantly longer ($p<.05$) on the physical discomfort test than did the nonathletic group. The individual sports group was significantly more masculine in interest ($p<.05$) than was the nonathletic group. It was not concluded why women athletes persist longer on the physical discomfort task. Furthermore, findings in this study do not support the hypothesis that there is a general trait of persistence but instead indicate it may be specific to the type of task being performed.

891. SAUBERT, Carl W. IV. Plasma lactic dehydrogenase responses to exercise in rats. M. S. in Physical Education, 1970. 62 p. (P. D. Gollnick)

Two control groups and 3 trained groups, 5 male Sprague-Dawley rats per group, were used. Rats were trained by running in motor-driven wheels for 1 hr/day (5 days/wk) at 26.8 m/min. Five controls were sacrificed at rest. All other animals were exercised prior to sacrifice. Five controls and 5 trained animals swam 5 hrs.; 5 trained animals ran at 26.8 m/min for 1 hr., and 5 trained animals ran at 26.8 m/min until exhausted. Each day one animal from each group was sacrificed. Plasma LDH activity was determined by the spectrophotometric method using a Beckman DU Spectrophotometer. Electrophoresis was used to detect the LDH isoenzymes present in the plasma. Plasma LDH-plasma hemoglobin correlations were highly significant in all groups except control swimmers. Training helped prevent the escape of LDH from tissues in trained animals following all exp. exercise loads. Increases in plasma LDH activity in trained animals following exercise were probably due almost entirely to exercise-induced disruption of platelets and erythrocytes.

Wayne State University, Detroit, Michigan (R. J. Lueft)

892. VAN ERMEN, Ronald. A comparative assessment of personality characteristics of college football players. M. Ed. in Physical Education, 1971. 83 p. (R. J. Lueft)

Personality characteristics of college football players (N=50) were assessed using the MMPI. Factor analysis identified 3 factors as related to underlying characteristics of personality in the football population. They were global emotional arousal capabilities, identity crisis and defusion, and achievement motivation and personal activity level. Significant differences were found between subpopulations starter/nonstarter on the Sc scale; black player/white player on the Hy and My scales; and letterman/nonletterman on the Pt scales. No significant differences were found between subpopulations year of football eligibility and type of competition. A linear discriminate function, utilizing criterion groups quitter and nonquitter, predicted actual behavior in 72% of the cases.

Western Illinois University, Macomb, Illinois (G. W. Hermann and R. Aten)

893. AKPONWEI, Patrick S. Problems of interpretation of the physical education activities programs in selected African countries. M. S. in Education, 1971. 51 p. (G. W. Hermann)

Problems relating to the interpretation of the PE and REC activity programs common to the African countries of Ethiopia, Ghana, Kenya, Nigeria, Somali, Uganda, and Zambia were identified and reasons were

sought as to why the organization of these programs in developing countries had failed to progress as other African organizations which have attempted to collectively solve common problems. It was concluded that each African country should reorganize its PE and activities program administration; the program which had been under the control of senior civil servants should now be administered by trained professional PE administrators. It was also suggested that each country form associations of PE specialists who would advise each country on the program it should adopt to meet its unique needs.

894. ARMBRUSTER, Ronald E. A comparison of Missouri high school football coaches from various institutions regarding learning theories as related to football coaching. M. S. in Education, 1971. 49 p. (D. E. Mudra)

Questionnaire responses from 201 head football coaches of Missouri SHSs were analyzed in regard to their beliefs of 2 learning theories--Gestalt and Stimulus-Response--in relation to coaching football. Findings indicated that the type of institution attended and whether or not the coach played college varsity football were not factors which will cause significant differences in one's personal theory as applied to football coaching; participation in varsity football may result in more success at coaching football than if one did not participate; the theory of learning which is adopted and applied to football coaching will not affect the success of the coach in regard to games won but coaches who adopt one theory, either S-R or Gestalt, are likely to be more successful in terms of winning than coaches who do not possess a preference toward either learning theory.

895. BAKER, Andrea L. The development of an instrument to project badminton shuttlecocks. M. S. in Education, 1971. 50 p. (R. Aten)

896. BOSBEN, Patricia A. The development of a skill test for the volleyball bounce pass for college women beginning volleyball players. M. S. in Education, 1971. 34 p. (R. Aten)

A skill test was devised to measure a beginning college woman volleyball player's skill in bounce passing a volleyball from the rear of the court toward the net. The product of the pass was defined as a pass at least 10 ft. in ht. and approximately 20 ft. long. Content validity was claimed as the test was designed to meet the specifications of good performance. Ss (N=62) were college women enrolled in beginning volleyball classes at W. I. U. Each S was given 10 trials on each of 3 testing days. A mechanical serving apparatus modified by the researcher allowed for consistency of the serve in velocity and direction. A reliability estimate of .55 for the skill test was determined by ANOVA.

897. CANDIANO, Dan. The attitudes of male secondary school physical education teachers toward the objectives of physical education. M. S. in Education, 1971. 44 p. (G. W. Hermann and K. M. Pearson)

Attitudes of male physical educators (N=96) in secondary schools in Ill. were determined through a survey instrument in regard to objectives to be included in the PE program and the ranking of objectives as to their importance. The instrument consisted of a list of 10 defined objectives generally accepted by the PE profession. Findings revealed that all stated objectives, with the possible exception of spiritual and moral strength, were generally agreed upon as being objectives which should be included in the PE program. When ranked according to their importance, the objectives of leisure time and neuromuscular skills were most highly valued, followed by emotional stability, organic vigor, democratic values, mental development, self-realization, social competency, cultural appreciation, and spiritual and moral strength.

898. CRISTINA, Jerome F. Submaximal heart training in women. M. S. in Education, 1971. 34 p. (D. F. Mapes and G. W. Hermann)

The study attempted to establish the minimal HR which must be maintained on a bicycle ergometer in order to effect a significant change on the resting HR of college age women. Ss (N=32) were randomly divided into 3 groups to be trained for 10 min. per day, 3 days per wk., for 8 wks. Members of the 3 groups pedaled the bicycler ergometer with a resistance which allowed the investigator to control the predetermined HR of each subject as follows: Group I - 120, Group II - 130, and Group III - 140. Each group showed statistically significant gains ($p<.05$) at the end of the training period. There were no statistically significant differences between the groups ($p>.05$).

899. ESCUTIA, Richard A. A comparison of repeated jumping and isokinetic training for increasing the vertical jump in volleyball. M. S. in Education, 1971. 22 p. (D. F. Mapes)

Ss (N=53) were randomly divided into 3 training groups. Ss were tested in vertical jumping ability at the onset of the 7-wk. 2 session per wk. training period and again at its termination. Group I trained with 25 repetitive jumps using a maximal effort against no resistance. Group II trained isokinetically with 10 extensions from a squat position exerting a maximal effort against the "Super" Mini-gym. Group III served as a control group and participated only in a volleyball class, as did the other 2 groups. None of the 3 groups proved to have statistically significant improvements ($p>.05$) in vertical jumping ability.

900. GLAS, Richard. Effects of foot positioning upon reaction-movement time of defensive basketball players. M. S. in Education, 1971. 31 p. (J. A. Colgate)

Forty males were tested to determine if there was a significant difference in RMT of defensive basketball players using a parallel stance and a dominant-foot-back stance. Ss included 10 basketball players from each of the following levels: 8th grade, HS varsity, college freshmen, and college varsity. Six movements each were made to the right, left, and backwards. Three of these movements were made with the parallel stance and 3 with the dominant-foot-back stance. Ss moved a total of 10 ft. during each movement. Findings indicated no significant difference ($p>.05$) in RMT within each of the 4 groups, using the parallel or the dominant-foot-back stance. Using both stances and in all 3 directions, there was a significant difference ($p<.05$) in RMT between the 8th grade players and the college varsity, college freshmen and HS varsity players; however, there was no significant difference ($p>.05$) between the HS, college freshmen, or college varsity basketball players.

901. HALLETT, Charles D. An electromyographic comparison of muscular activity for the sternocostal pectoralis major, teres major, and latissimus dorsi in three cross-hold positions. M. S. in Education, 1971. 32 p. (G. W. Hermann and D. F. Mapes)

The study determined if there were specific or unique patterns in the recordings of the muscle action potentials for the sternocostal pectoralis major, teres major, and latissimus dorsi muscles of 11 Ss performing 3 deviations of the iron cross position. A Variable Resistance Cross Mechanism was used to enable Ss to achieve the cross-hold positions studied. Ss performed, in order, the ideal, the posterior, and the anterior cross position for 3 sec. each. EMGs of the 3 positions were recorded and then interpreted and scored by a planimeter tracing of the curves for the 3-sec. hold positions. Results of the t showed significant differences ($p<.05$) to exist between M for all muscles for anterior and

medial positions and sternocostal pectoralis major and teres major for the anterior and posterior positions. Findings indicated that the patterns of contraction of the sternocostal pectoralis major and teres major exhibit noticeable similarities, while the latissimus dorsi showed the least difference in contraction strength levels from one position to another.

902. KOCH, Barbara A. The effect of utilizing shorty tennis rackets on beginning tennis achievement by college women. M. S. in Education, 1971. 46 p. (H. S. Greer)

Data were collected through 3 administrations of the Scott-French revision of the Dyer Wallboard Tennis Test. Ss (N=40) were randomly selected from beginning tennis classes and assigned to a control or exp. group. The exp. group utilized the shorty rackets for 6 instructional periods and standard rackets for 6 instructional periods. The control group utilized the standard rackets throughout the course of instruction. Both groups received identical instruction and 35 min. of activity twice weekly. The 2-factor ANOVA with repeated measurements on the same subjects indicated no significant differences between the 2 variables.

903. KOELLNER, William P. A study of drug usage at Western Illinois University. M. S. in Education, 1971. 37 p. (J. H. Leach)

A questionnaire was administered to 808 students enrolled in HE courses at W. I. U. to determine the prevalence and frequency of the use of marijuana and LSD; when and where the student first tried these drugs; and the prediction of both users and nonusers concerning future use of marijuana and LSD. Findings indicated that 62% of the Ss had used neither drug, while 31% had used only marijuana and 7% were users of marijuana and LSD. Prior to Oct. 1969 was the most frequently cited period for the initial use of marijuana and LSD. The most frequent place for the initial start of using marijuana was in the home community, while the most frequent place for initial use of LSD was W. I. U. The majority of students indicated they would not use marijuana or LSD in their future. Users of both drugs indicated a high probability concerning the future use of marijuana whereas users of neither drug indicated the future use of marijuana was highly unlikely. Ninety % of all students responded that use of LSD in the future was highly unlikely.

904. KOZINSKI, Theodore R. The psychological and physiological effects of music on the heart recovery rate. M. S. in Education, 1971. 29 p. (G. W. Hermann and D. F. Mapes)

Psychological and physiological effects of "soft-melodic" music were determined by measuring recovery HR after 5 min. of vigorous exercise. Ss (N=15) completed 2 identical workloads on a bicycle ergometer with each S serving as his own control. Immediately following the termination of the exercise period the treatment (music) and the control (nonmusic) were administered and HR was recorded at the end of 8 successive min. during the recovery period. A correlated t revealed no significant effect of "soft-melodic" music causing lower recovery HRs than nonmusic ($p<.05$).

905. MADDOX, Craig S. Changes in skinfold measurements and body composition of college wrestlers. M. S. in Education, 1971. 32 p. (M. H. McIntyre)

Changes in skinfold measurements and body composition of 19 collegiate varsity wrestlers were studied during a 9-wk. competitive season. Measurements were taken prior to and at the conclusion of the season, and body density, % of body fat, and % of lean body weight were calculated. Findings indicated a reduction in body weight, % of body fat, skinfold measurements at the chest, abdomen and upper arm, lean body weight, and fat body weight. Body density increased.

906. McRELL, Ellen R. A comparison of a movement education program, a traditional physical education program, and a program without physical education using selected movement patterns. M. S. in Education, 1971. 47 p. (R. Aten)

Students who had experienced either a movement education program for 3 years, a traditional PE program for 3 and 4 years, or an organized PE program were evaluated for running and throwing patterns using the Movement Pattern Checklists of Thompson and Godfrey. Fifteen Ss were randomly selected from each of 3 groups. Three evaluators observed the Ss while they participated in game-like activities. A Kruskal-Wallis 1-way ANOVA by ranks indicated a significant difference between groups. The Mann-Whitney U test was used to identify the source of the effect between groups. The movement education program prevailed over the other programs in the development of running and throwing movement patterns.

907. MORTIER, Lawrence C. The effects of praise and punishment motivation as evidenced by college football athletes in tension-producing situations involving competition on a gross motor task. M. S. in Education, 1971. 45 p. (D. E. Mudra)

Based on performance times in individual competition, varsity football athletes (N=24) were divided into 2 groups: those who functioned well and those who did not function well under competition. One group received a praise motivation treatment, the other a punishment motivation treatment. Ss were required to complete 3 trials on a unique gross motor ability task at each of 3 testing sessions: an initial test, in individual competition, and competition plus the treatment. Findings revealed that praise motivation and punishment motivation had little effect upon performance on a gross motor task. However, competition was effective as a motivating agent and did enhance performance ($p<.01$).

908. RANDOLPH, Patricia A. A study of adapted physical education for handicapped high school boys and girls in 18 selected counties in Illinois. M. S. in Education, 1971. 72 p. (J. Robertson)

Results of a questionnaire indicated that special classes for the physically handicapped student were needed. Of 98 possible programs that could have been established for the handicapped child, only 19 programs existed. Exclusion of the handicapped child from the regular PE class was upon the recommendation of the family physician. If no adapted class was available, the PE requirement was waived. A plea for adapted classes was unheeded because of lack of available funds, staff, and space.

909. SOKOL, Howard. The development of circulorespiratory and muscular endurance that results from two different preseason programs of training high school gymnasts. M. S. in Education, 1971. 49 p. (D. F. Mapes)

Twenty-eight SHS gymnasts were randomly divided into 3 training groups to compare effects of 2 types of preseason conditioning programs on attainment of muscular and circulorespiratory endurance. All Ss participated daily in a 45-min. gymnastic free-play program during a 6-wk. period. Each day for 15 additional min., Group A performed interval running, Group B performed low-wt. high-repetition weight training exercises and the control group continued at free play. Ss were pre- and post-tested; data were gathered measuring the S's circulorespiratory and upper-body muscular endurance condition. All groups made statistically significant gains ($p<.05$) in the area of circulorespiratory endurance. The interval running group and the control group made statistically significant gains ($p<.05$) in the area of upper-body endurance. ANOVA revealed no statistical differences between the gains of the subjects in the 3 groups ($p>.05$).

910. WARN, Robert A. A comparison between the stationary and stutter-step technique in stealing second base. M. S. in Education, 1971. 24 p. (W. B. Bradley)
Ss (N=30) were members of the varsity baseball team at W. I. U. All Ss performed both techniques and were divided into 2, 15-man squads with each squad meeting on alternate days for a total of 2 testing sessions. Each S was tested on each of the 2 techniques 6 times each session. The t indicated a significant difference ($p<.05$) in favor of the stationary technique.

Western Kentucky University, Bowling Green, Kentucky (W. B. Koch)

911. CHAPPELL, Robert. The development of a basketball battery for middle school students. M. A. in Education, 1971. 37 p. (W. B. Koch)
This study was undertaken to devise a standardized and utilitarian battery of test items that could be used as an aid in selecting players, equating teams, grading and measuring progress, or for motivational purposes. Male 9th grade students (N=58) at a SHS were tested on a battery of 8 test items and measured on certain anthropometric items, the results from which were correlated with a subjective rating by coaches of the Ss' ability to play basketball in the game type situation. A .73 correlation between the composite 8-item battery score and the subjective rating was found. A 4-item test battery consisting of the tip-in test, vertical jump, baskets in 30 sec., and the 50-ft. dash approached the validity level of 8-item battery and could therefore be used as standardized basketball battery. Factors of age, ht., and wt. were relatively unimportant to the criteria.

912. KAYE, Gary G. D. Physical working capacity of adult men resulting from a progressive aerobics training program. M. S. in Physical Education, 1971. 68 p. (D. E. Cundiff)
The purpose of this study was to determine if a progressive aerobics training program would affect PWC-170, HR, or predicted $\dot{V}O_2$. The experimental group (N=8) trained 2-4 days per wk. for 15 wks. while the control group (N=7) rested. A modified bicycle ergometer test was given each S before and after the training program. Ss were asked to pedal the ergometer for 18 min., 6 each at 150, 450, and 750 kpm; recovery measures were taken for 5 min. HR was continuously recorded on a physiograph. Differences between the Ms of pre- and post-tests of PWC-170, HR at 3 levels of exercise, and $\dot{V}O_2$ were all statistically significant ($p<.05$). The training program did not produce significant changes in resting or recovery HR. It was concluded that 15 wks. of participation in a progressive aerobics training program will produce reductions in HR response to submaximal exercise, increase PWC-170, and predicted $\dot{V}O_2$.

913. POWER, Sean L. D. Performance in the Jumps Decathlon related to the triple jump. M. A. in Education, 1971. 41 p. (W. B. Koch)
The purpose was to determine the validity of the Jumps Decathlon as a method for recognizing potential triple jumpers. Anthropometric measures were taken on 30 male SHS track and field athletes who were tested alternately on the Jumps Decathlon and the triple jump over 6 sessions. An arbitrary standard of .80 was set for intercorrelations between Jumps Decathlon items and the triple jump criterion. Four items were identified which measured selected factors in the Jumps Decathlon as a whole, and also had more than .80 correlation with the triple jump criterion.

One item, the standing 2 hops, 2 steps, 2 jumps, had a .91 correlation with the triple jump criterion. None of the anthropometric measures reached the .80 standard.

914. WILLIAMS, Charles S. The relationship between personality factors of collegiate football players and their effectiveness on the playing field. M.S. in Physical Education, 1971. 34 p. (W. B. Koch)

This study examined the relationship of personality characteristics between outstanding and less outstanding football athletes, between offensive and defensive players, and between older and younger team members at Western Kentucky University. Forty-four players were administered the Cattell 16 PFI. The t tests indicated that age differences and quality of accomplishment were not significantly differentiated on the 16 PFI. Factor N, forthright-shrewd, was the only personality factor showing significance when comparing offensive and defensive groups; the defense was more forthright and the offense exhibited shrewd tendencies.

University of Wisconsin, Madison, Wisconsin (J. G. Wolf)

915. ALLEN, John D. The history of professional baseball rule changes (1800-1970). M.S. in Physical Education, 1971. 153 p. (J. G. Wolf)

The history of professional baseball rule changes was determined by examining the professional baseball rule books, making note of any changes or comments from the beginning to 1970. The documented study was divided chronologically--1800-1875, 1876-1903, 1904-1949, 1950-1970--and included a final summary statement.

916. ANHALT, Carol. The development of physical education in the public schools of Wisconsin. Ph.D. in Physical Education, 1971. 348 p. (F. Z. Cumbee)

This study traced the development of PE in the public schools of Wis. from the 1870s through the early 1960s. The 2 major forces which influenced PE during the founding years were the Turners and the Playground Movement. Only Calif. and Ohio had passed state PE laws before Wis. passed one in 1897. In that same year, the Wisconsin Physical Education Society was organized under the leadership of the Milwaukee Turners. The University of Wisconsin major preparation program in PE, begun in 1911, was the first one at a state-supported institution in the Middle West. Two yrs. later, a PE teacher training program was established at the LaCrosse Normal School. In spite of these signs of early interest in PE, it was not established on a statewide basis until the publicity on the draft statistics of World War I brought about the passage of a 1923 law requiring 150 min. per wk. of physical education instruction in grades 1-12. The depression impeded the progress of PE in Wisconsin, but the curtailments were relatively short-lived as World War II brought a revived concern for physical fitness. After a quiet interlude following World War II, events on the national scene in the 1950s and early 1960s once again made fitness the keynote of PE in the state. Amidst the cry for more PE in the schools, came the repeal in 1963 of the time requirement stipulated in the law passed in 1923.

917. BLIEVERNICHT, David L. Muscle activity in reversible actions: An electromyographic analysis. Ph.D. in Physical Education, 1971. 195 p. (E. M. Roberts)

Six potential elbow flexors of 7 Ss were observed via surface electromyography in their role under conditions representing regular and reverse actions. The skilled movement of chinning was performed in regular fashion, moving the body toward the hands, and in reverse fashion, moving the hands and cabled pulley weights equal to body wt. toward the body. A single joint action, elbow flexion, was studied as a regular curl (arm fixed, forearm free to rotate), and an inverted curl (forearm fixed, arm free to rotate). Equated curling tasks of the regular and inverted form were used to study the effects of variations in load from maximum to 60% of maximum, and variations in tempo from 40 to 80 bpm. The regular curl was also performed with the bar only (no load) at 40 and 80 bpm to study possible spurt or shunt effects in muscle function. When the leads being moved were equalized, there was no significant difference in EMG activity between regular and reverse chinning. Neither was a significant difference found in the activity of potential shunt muscles. As expected, the greater load and faster tempo produced significantly greater EMG activity than the lesser counterparts, with the greater load causing a more pronounced change than the greater tempo.

918. HARRINGTON, John R. The relationship between organized physical recreation and juvenile delinquency. M.S. in Physical Education, 1971. 99 p. (J. G. Wolf)

A questionnaire was administered to all available fresh. and soph. boys at Waunakee SHS (69 out of 100) and a stratified random sample of 110 soph. at Racine Case SHS. The questionnaire included background information, Hollingshead Index of Socio-Economic class, participation in organized physical recreation, and questions concerning behavioral delinquency. No significant relationship (.10 level) was found between participation in organized physical recreation and the amount of behavioral delinquency engaged in; self-concept of athletic ability and the amount of behavioral delinquency engaged in; and socioeconomic class and participation in organized physical recreation.

919. HJERMSTAD, Dorothy R. Evoking creativity through particular approach to dance improvisation. M.S. in Physical Education-Dance, 1971. 75 p. (F. Mary Fee)

Four dance improvisation problems designed to stimulate creativity were presented, and 2 of these were evaluated by certain creativity criteria developed in the study. Findings from this evaluation were discussed in relation to the probable thought process. It was concluded that dance improvisation problems could be used to evoke creativity.

920. JACKSON, Roger C. Ventilatory responses to exercise and hypoxia. Ph.D. in Physical Education, 1971. 225 p. (B. Balke)

The purpose of this study was to investigate phenomena of ventilatory sensitivity in man to hypoxia during rest and light exercise; to partition the ventilation resulting from exercise in normoxia and hypoxia into component drives to determine quantitatively the contribution of each drive, acting alone or in combination, to total ventilation; and to explore the possible role of catecholamines in the ventilatory responsiveness to exercise and hypoxia. A model was designed for the partitioning of the ventilatory drives into basal, exercise, hypoxia and exercise-hypoxia interaction components. Ventilatory responsiveness to hypoxia was determined at several arterial oxygen tensions ranging from 250 for 45 mm Hg. Seven males (age 20-22 yrs.) served as Ss. Inspired and end-tidal PO_2, PCO_2, pH, lactate, $\dot{V}O_2$, HR, and respiratory frequency were measured continuously. Results showed that exercise potentiates the hypoxia ventilatory drive. The magnitude of this interaction depended on work intensity and the degree of hypoxia. The exercise-hypoxia interaction was also related to the amount of catecholamines excreted in the

urine: exercising in hypoxia resulted in a potentiated catecholamine excretion which paralleled the potentiated ventilatory response. Norepinephrine infusion stimulated ventilation. It was concluded that exercise-hypoxia interaction is mediated via catecholamine release from sympathetic nerve endings and the adrenal medulla.

921. LEGGETT, Dorothy A. Neuromuscular patterning of skilled gymnasts. Ph. D. in Physical Education, 1971. 94 p. (J. C. Waterland)

The neuromuscular patterns of 5 skilled gymnasts were studied through surface electrodes and a Visicorder optical polygraph. Consistency in spatiotemporal relationships was examined in the activity of the sternal portion of the pectoralis major muscle, the anterior and posterior portions of the deltoid, the upper and lower fibers of trapezius, and latissimus dorsi. The hip pullover, swing to handstand, and the back uprise were the skills chosen for testing. Film (16 mm) recorded the test performances. A timing device simultaneously recorded time intervals on the film and alongside the muscle action potential graphs, so that the overt movement could be synchronized with the covert muscle patterns. Consistency within and between Ss was indicated by a 72% correct matching of electromyograms according to S, and 88% correct grouping by stunt by 3 judges skilled in electromyography. Without strict controls, varying methods of performing the same gymnastic skill were shown to occur between individuals. Some of the discrepancies in the recorded neuromuscular patterns within Ss were found to be due to fine adjustments in equilibrium. A detailed analysis of some of the electromyograms showed that, on the whole, the "reverse actions" of the muscles tested were according to expectation.

922. LOWE, Benjamin. The aesthetic sensitivity of athletes. Ph. D. in Physical Education, 1970. 111 p. (G. S. Kenyon)

Data were collected on the Beittel Art Acceptance Scale, the Child Art Judgment Test, the Eysenck Polygon Test, the Cattell 16 PF, and a questionnaire designed to determine exposure to art (art courses and attending art galleries) as well as social class. Sport groups were 52 gymnasts, 60 swimmers, 47 tennis players, and 47 wrestlers from Indiana University, University of Iowa, University of Minnesota, Northwestern University, and the University of Wisconsin. A control group of 81 from 100 randomly chosen undergraduate males from the University of Wisconsin was used. ANOVA was used to test for differences in groups on the attitude, judgment, and taste tests followed by a post hoc comparison with the Scheffé technique. Correlations between these variables were also computed for all groups. Influences of voluntary exposure to art work, experience in art courses and social class upon art attitude, art judgment and taste were examined by use of X^2. Group personality profiles were examined by use of discriminant function. The results indicated that only wrestlers differed from other male undergraduates in attitude towards art; gymnasts and wrestlers differed from other male undergraduates in art judgment; athletes and other male undergraduates do not differ in art taste; voluntary exposure to art work was reflected in art attitude but not in judgment and taste; experience in art is greater for the athletes than other undergraduate males; differences in social class background have no influence on art attitude, art judgment or taste; and the personality profile of the athlete is not distinguishable from that of the male undergraduate except that wrestlers and swimmers are more practical and conventional.

923. MacDOUGALL, Duncan. Circulatory adaptation to hyperthermia encountered during prolonged heavy exercise. Ph. D. in Physical Education, 1971. 141 p. (W. G. Reddan)

The study was designed to examine the effect of the consequence of varying thermal conditions on cardiorespiratory adaptations and the performance in a prolonged exhaustive run. Six healthy male Ss (2 highly trained distance runners) ran on a motor driven treadmill at 70% maximum $\dot{V}O_2$ in a water perfused suit to near exhaustion under conditions of normal, comfortable ambient temperature and humidity; hyperthermia (rapid increase over normal conditions in core temp.) and hypothermia (slow rise in core temp.). Throughout each test measurements were made of cardiac output, blood lactate, Hct, HB levels; total body water loss and sweat rate; core temp. (rectal and tympanic) and average skin temp.; ventilation and pulmonary diffusion capacity. Work tolerance from normal was decreased in hyperthermia (sig.) and prolonged in hypothermia (sig.). Significant increases in $\dot{V}O_2$ occurred under each condition, greatest increase in hyperthermia, least in hypothermia. Similarly, cardiac output, lactate, pulmonary ventilation and diffusing capacity were highest in the heat, lowest in the cold. Under normal and hot conditions the state of exhaustion was preceded by a fall in cardiac output resulting from a marked reduction in stroke volume. The significance of these findings is discussed with reference to homeostatic failure. Trained Ss were more efficient in dissipating metabolically produced heat.

924. PETERSON, Richard A. Microstructural and ultrastructural response of rat in myocardium to aerobic physical training. Ph. D. in Physical Education, 1971. 87 p. (F. J. Nagle)

This investigation was initiated in order to describe the anatomical adaptations that occur in cardiac muscle with physical training so that the mechanisms responsible for the functional adaptations might be better understood. Heart wt./body wt. ratios, myocardial fiber diameters, capillary/fiber ratios of the heart, and the proportionate volume of mitochondria in myocardium were measured in albino rats. Young male albino rats (N=44) were divided into 2 equal groups, an exp. and a control group. The exp. group ran 30 min. per day for 13 wks. on a motor driven treadmill. At the end of the training program, the animals in both groups were sacrificed and the hearts were excised and prepared for light and electron microscopy. Compared to the control group, the exp. group exhibited greater heart wt./body wt. ratios, larger myocardial fiber diameters, greater capillary/fiber ratios in the heart, and a larger proportionate volume of mitochondria in the myocardium. The differences between the 2 groups in all of these measures were significant ($p<.05$). No differences were noted between the 2 groups in the ultrastructural appearance of the mitochondria. The intensity and duration of the exercise, when performed on a regular basis for 13 wks., were sufficient to induce adaptations in the structural characteristics of the heart. Specifically, physical training resulted in a relative cardiac hypertrophy, increased myocardial capillarization, and an increased volume percentage of mitochondria in the myocardium.

925. POOLEY, John C. The professional socialization of physical education of students in the United States and England. Ph. D. in Physical Education, 1971. 243 p. (A. E. Jewett and G. S. Kenyon)

The purpose of this investigation was to determine the elements involved in the pretraining phase of the professional socialization of students, and to ascertain the relative importance of each of these as a function of country and sex. Measures of psychological and sociocultural attributes were obtained using a structured interview schedule based on questions related to the characteristics of the recruit, the socialization settings, and the socialization agents. Instruments included a questionnaire related to demographic material, a semantic differential approach used to assess attitudes toward physical activity, and a social values inventory.

The interview and questionnaire were administered to a total of 240 Ss, 20 randomly selected from each of 6 institutions in the U. S. and 6 in England, comprising equal numbers of males and females. Specific variables were shown to discriminate between samples of male and female fresh. PE students from the U. S. and England for each of 6 separate analyses. Samples were therefore empirically distinct from one another. The findings seem to warrant the conclusion that the process of professional socialization during the pretraining phase differs cross-nationally, between sexes, and as a function of the nation-sex interaction.

926. ROY, Benoit Gustave. Kinematics and kinetics of the standing long jump in seven-, ten-, thirteen- and sixteen-year-old boys. Ph. D. in Physical Education, 1971. 180 p. (E. M. Roberts)

Ss were randomly selected, using the middle 30% on the national norms of the standing long jump as a criterion of selection of the Ss in each group. The study focused partly on joint angular measures of velocity and acceleration, and partly on the linear components of force, impulse, and power of the body center of mass during the propulsive phase of the jump, using a force platform to measure the horizontal and vertical components during this phase. Cinematographic records were secured to compute joint and segment angular and linear displacement, and computer programs were designed to speed up data reduction and analysis. Data revealed that the kinematics of jumping are well established by the beginning of school age and remain essentially constant through mid-adolescence for average performers. The increase in mass, however, is a factor which accounts for the increase in the kinematic aspects such as force, impulse, and power generated during the propulsive phase of the standing long jump.

927. SMITH, Everett L. Bone changes with age and physical activity. Ph. D. in Physical Education, 1971. 109 p. (F. J. Nagle)

The purpose of the first investigation was to define the degree of bone mineral present in aged normal women versus aged clinical osteoporotic women. Fifty control Ss were age-matched with 50 clinical osteoporotics. The mid-shaft of the radius was measured by absorptiometry. The average bone mineral value of the control group was (.70 g/cm) and for the clinical osteoporotic group (.62 g/cm), which was significantly lower ($p<.001$) than the control group. The purpose of the second investigation was to study the effects of physical activity on the process of bone loss. Thirty-nine Ss were classified into a control, a physical activity, and a physical therapy group for the 8-mo. study. The mid-shaft of the radius of all Ss was measured by absorptiometry 3 times during the 8 mo. The physical activity group's bone mineral increased 2.6% during the study. The control group demonstrated no bone mineral change. The physical therapy group demonstrated a significant ($p<.05$) bone mineral increase of 7.8%. In the third investigation, 4 Ss were involved in the analysis of oxygen consumption of 10 activities used in the physical activity study. The oxygen requirement for the 10 physical activities ranged from 1.5 "mets" to 3.5 "mets."

928. TOYAMA, Judith Setsuko. The language of sport: A study of the knowledge of sport terminology as a function of exposure to the mass media. M. S. in Physical Education, 1971. 124 p. (G. S. Kenyon)

As sport has become increasingly complex, there has developed a language specific to that sport, defining its origins from the language of the society, the game itself, and the medium by which the sport is transmitted. This study examined the relationship between the knowledge of sport terminology and the indirect consumption of sport via the mass

media. These were operationally defined as the score on a knowledge test of professional football terminology and terminology specific to the Green Bay Packers, and as the frequency of professional football games and the number of Green Bay Packer games watched on television during the 1970-71 season. Education, age, occupation, and reading about professional football daily in the newspaper were controlled for in X^2 analyses. A direct relationship was found between indirect consumption of sport; knowledge of sport terminology specific to that team was not significant for the cases of education beyond SHS, age greater than 35 yrs., or a white collar occupation. The knowledge of sport terminology was directly related to knowledge of sport terminology specific to 1 team.

929. VANDER VELDEN, Lee R. Relationships among member, team, and situational variables and basketball team success: A social-psychological inquiry. Ph. D. in Physical Education, 1971. 244 p. (G. S. Kenyon)

The purpose of this investigation was to explain sport team effectiveness by determining the significance of selected socio-psychological attributes and situational conditions hypothesized to be related to team success. Questionnaires especially designed to obtain data pertaining to the hypothesized relationships were administered to team members and coaches of 25 SHS basketball teams before the season, after the first round of league competition, and after the completion of the season. The following conclusions were drawn: group effectiveness is a function of members' task ability, members' task experience, and team cohesion; specifically, the greater the task ability, the more effective the team; the greater the task experience, the more effective the team; and the more cohesive the group, the more effective the team. Group effectiveness is independent of the distribution of ability among members, attitudes of team members toward the task, attitudes of the coach and team leader toward the task, leadership experience of the coach, members' feelings for their coach, school size, and leadership turnover. Whereas group effectiveness is independent of the consensus among members as to the value of individual members to the team and the permanence of this concordance, the agreement between the coach and team members on the rankings of players is related to team success. The greater the consensus, the more effective the group. Tradition was related to team performance only among large school teams.

University of Wisconsin - La Crosse (Robert W. Batchelder)

930. ARKIN, Dennis L. The effects of oxygen as a recovery stimulant following exercise. M. S. in Physical Education, 1971. 54 p. (P. K. Wilson)

The investigation was designed to determine if O_2 fortified air would result in an acceleration of the physiological recovery process, following a submaximal exercise test, as measured by the selected physiological parameters of HR, respiratory rate, and blood lactate. The statistical method utilized to determine differences in the mean scores of the 3 investigated parameters was a small sample t test for correlated data. It was concluded that inspiration of O_2 fortified air had no significant effect ($p>.05$) on accelerating the recovery process of HR, respiratory rate, or blood lactate oxidation following exercise.

931. KRCMAR, Edward D. A study to determine the validity of the Ohio State University step test by correlation with the Balke treadmill test. M. S. in Physical Education, 1971. 42 p. (W. A. Floyd)

The investigation was conducted with 20 male Ss involved in PE. Both athletes and nonathletes ranging in age from 18 to 33 participated in the study. Each S took the OSUST and BTT twice and his mean score on each test was used for correlational purposes. It may be concluded that the OSUST is a valid indication of cardiovascular endurance when correlated with the BTT.

932. SCHWARTZ, Marilyn J. A study of attitudes and expectations of student teachers in physical education at selected universities in Wisconsin. M.S. in Physical Education, 1971. 94 p. (W. Kaufman)

Participants were 110 PE student teachers from La Crosse State University and Oshkosh State University. Ss were given the MTAI and the STEQ before and after student teaching. A χ^2 analysis was done for the total sample as well as on the 3 subgroups. There was no significant attitude change on the MTAI as a result of student teaching experience. Two subgroups met their student teacher expectations as measured by the STEQ during the student teaching assignment.

933. SEMON, Margo E. Development and validation of a fencing footwork agility test. M.S. in Physical Education, 1971. 46 p. (F. Carter)

An attempt was made to validate the fencing footwork agility test against judges' ratings of speed in changing direction, balance, and general fencing ability. These judges' ratings were made with the use of videotape. The inter r of the judges' ratings of each of the criterion measures with the average scores of the Ss' performance on the proposed fencing footwork agility test indicated that speed in changing direction, balance, and general fencing ability had little relationship to the fencing footwork agility test that was presented in the investigation.

934. TESCH, Karen L. The effect of visual aid and conventional instruction on the learning of four selected gymnastic skills. M.S. in Physical Education, 1971. 114 p. (M. McLellan)

The selected gymnastic skills were the headstand, handstand, cartwheel, and round-off. The visual aids were single concept loop films of each skill and a performance film. The study involved 108 Ss who attended 10 instructional periods. Each S was filmed performing the 4 skills for the final test. The film was viewed and judged by 5 judges. Kendall's Coefficient of Concordance was employed, the Kruskal-Wallis 1-way ANOVA was computed, and the Mann-Whitney U test was employed. These conclusions were drawn: little over-all benefit in using loop films and performance film in teaching the skills; no significant differences were found for any of the tests.

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*Acta Chirurgica Scandinavica
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*Acta Morphologica Neerlando-Scandinavica
*Acta Orthopaedica Scandinavica
*Acta Paediatrica Scandinavica
*Acta Physiologica Polonica
*Acta Physiologica Scandinavica
*Aerospace Medical Research Laboratory Report
*Aerospace Medicine
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*American Journal of Public Health
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American Sociological Review
*Anatomical Record
*Annals of the American Academy of Political and Social Science
Annals of Applied Biology
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*Annals of Internal Medicine
Archives of Internal Medicine
*Archives of Physical Medicine and Rehabilitation
Archives of Surgery
Australian Journal of Experimental Biology and Medical Science
*Ballistic Research Laboratories Contract Report
*(British) Army Personnel Research Establishment
*British Heart Journal
*British Journal of Industrial Medicine
*British Journal of Nutrition
*British Journal of Preventive and Social Medicine
*British Journal of Psychiatry (Journal of Mental Science)
*British Journal of Psychology
British Medical Bulletin
*British Medical Journal
Bulletin of the Los Angeles Neurological Society
*California Journal of Educational Research
*California Medicine
*Canadian Journal of Physiology and Pharmacology
*Canadian Journal of Psychology
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Cancer Research
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Genetic Psychology Monographs
*Geriatrics
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Health Education Journal
*HSHMA Health Reports
*Human Biology
*Human Factors
*Ergonomics
*Indian Journal of Medical Research

*Periodicals marked with an asterisk have research reports listed in Part II - Bibliography of this issue of Completed Research.

*Industrial Medicine and Surgery
*International Journal of Biometeorology
*International Journal of Health Education
International Journal of Social Psychiatry
*International Review of Sport Sociology
*International Zeitschrift für Angewandte Physiologie
*Johns Hopkins Medical Journal
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*Journal of Sports Medicine and Physical Fitness
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*Lancet
*Materialy I Prace Anthropologiczne
*Medical Journal of Australia
*Medicine and Science in Sports
Mental Hygiene
*Military Medicine
*Monographs of the Society for Research in Child Development
*NASA Technical Memorandum
*NASA Technical Translation
*National Aeronautics and Space Administration
Nation's Schools
*Nature
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*Naval Medical Neuropsychiatric Research Unit Report
*New England Journal of Medicine
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*NMFRL Report
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Research Bulletin of the NEA
*Research Quarterly, AAHPER
*Revue Canadienne de Biologie
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*South African Medical Journal
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*Texas Reports in Biology and Medicine
*The Thirty-Ninth Annual Survey of Football Fatalities
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*University of Dayton Report
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